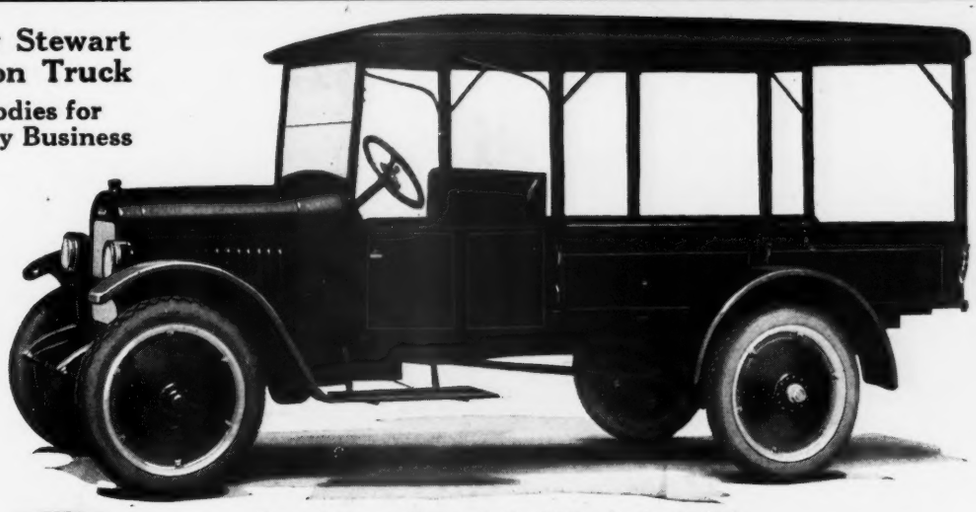
APRIL 15, 1923
VOL. XXV NO. 2

SPECIFICATIO
TABLE — PAG
3

THE COMMERCIAL CAR JOURNAL

Entered as Second-Class Matter at the Post Office at Philadelphia, Pa.

New Stewart
1 Ton Truck
Bodies for
Every Business



Complete as Illustrated, $1185, f.o.b. Buffalo

FOR $990 CHASSIS

Matches Trucks Costing $1500 to $1800

Check the Facts Yourself

It alters all truck values. Point for point it equals or excels trucks costing from $1500 to $1800. Check the specifications. The pressed steel frame is 6" deep. Wheelbase 130". Loading space 8'. 3¾" bore, 5" stroke motor. Large multiple disc clutch. Has 5-bearing crankshaft motor, smooth and powerful. Deep cushions and comfortable driving position. With capacity load will exceed 40 miles per hour.

More than one hundred experienced automobile dealers and salesmen have examined this new Stewart within the past ten days, and are loud in their praises. With body and equipment complete, this new Stewart undersells the chassis alone of many trucks which it will out-last and out-perform.

Biggest Dealer Opportunity in Years
Act Now—Write or Wire

Zenith carburetor. Remy ignition, starter, generator. Fuller transmission. Gemmer steering. **All found in trucks costing $1500 to $1800.**

Motor—5-bearing crankshaft. Pressure feed lubricating, automatic control. Removable cylinder head and block. **Matches motors of trucks costing up to $1800.**

Axles—**Front,** I-beam, drop-forged. **Rear,** spiral bevel gear, heavy Brown-Lipe differential. All Timken roller bearings. **Equal to trucks costing $1800.**

Disc steel wheels—Firestone demountable rims. Cord tires, 34" x 4½". Service brake, internal expanding in 14" wheel drums. Emergency contracting type on transmission.

STEWART
MOTOR CORPORATION Buffalo N.Y.

PUBLISHED THE 15TH OF EACH MONTH
CHILTON COMPANY
CHESTNUT & 56TH STS. PHILADELPHIA

CLARK STEEL WHEELS

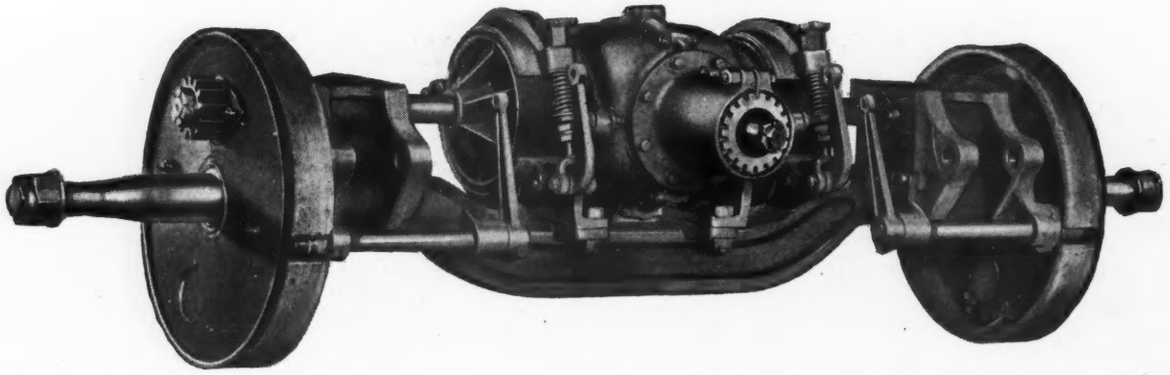
Spoke and Disc

For Truck and Bus

Clark Steel Wheels are cast from electric furnace steel—hubless or hubs integral as desired, for solid or pneumatic tires.

Clark Axles are built in three drives and fifteen models with capacities from ¾ to 6 ton.

CLARK EQUIPMENT COMPANY
BUCHANAN - - - MICHIGAN



CLARK [BEVEL GEAR INTERNAL GEAR OVER HEAD DRIVE] AXLES

Knowing Whereof We Speak

DURING the past nine months we have repeatedly predicted on this page that business in the motor truck field would show a decided trend for the better during the closing months of 1922 and during the year 1923.

The motor truck business has come back in fine shape, and this year will be without question a banner year. Numerous reports have reached us during the past three weeks which indicate that in some cases conditions are paralleling the war days when getting raw material and labor was the industry's chief concern, and not orders.

> "Our principal efforts are obtaining material rather than obtaining business. Of course, we expect to put in some time trying to obtain higher prices for . . . to compensate for higher material prices," says one prominent unit manufacturer.
>
> A prominent casting manufacturer writes as follows: "The general castings market with us is very much improved. The demand is very heavy—80% of our output at the present time is on specifications placed with us by motor car and engine builders. Further orders are offered up to full capacity of our plant. Our only cause of worry is caused by the lack of sufficient labor."

Most reports indicate that business among the automotive parts and unit manufacturers has reached a very substantial basis. The parts industry is the natural barometer of the truck market. In other words, when the purveyors of engines, axles, frames, castings, etc., are practically filled up with orders, it is evident that business is very good. Just what effect this will have on truck prices remains to be seen. From our observations, however, it is certain that prices of motor trucks cannot be reduced, but no great increase in prices is anticipated.

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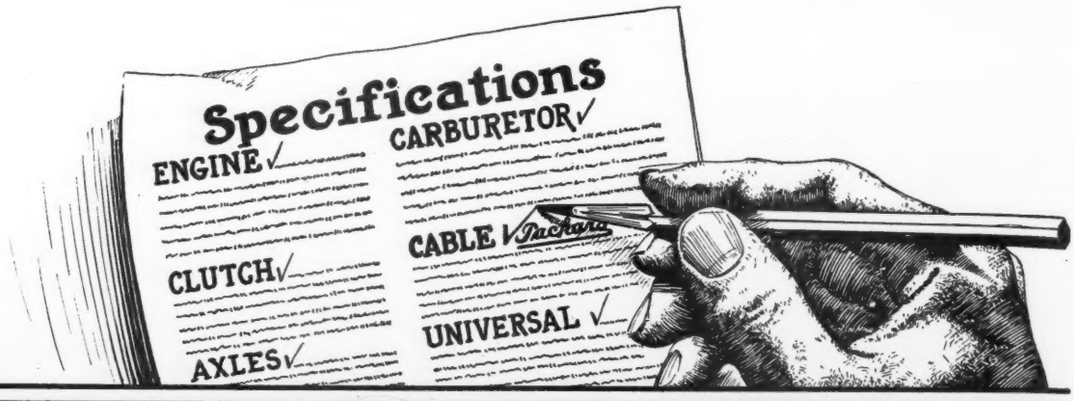


Check Up — and Be Safe!

Construction of
Packard Jr.
CABLE
Double Braiding
Single Layer of Rubber Compound Not so High in Quality as Packard
Enamel Coating Not Quite as Thorough as on Packard
Cheaper Core Than Packard

Construction of
ARMORED CABLE
The Armor Itself Consisting of Special Steel Ribbon Wound on Spirally
A Layer of Braiding Made from Special Tough Thread Impregnated With a Elastic Oil Proof and Water Proofing Enamel
A Layer of Varnished Cambric Tape
A Layer of Cotton Covering
A Core of Many Fine Tinned Copper Wires Arranged to Combine High Conductivity With Great Strength

You check up on the dependability of the engine, axles, transmission and other large units of your chassis.

But do you make equally sure of the dependability of that vital unit which must function perfectly, uninterruptedly—or the others won't? The wiring assembly for the Starting, Lighting and Ignition Systems!

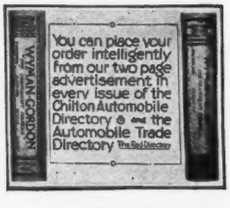
Leading truck and car makers and dealers have come to the conclusion that it pays to specify Packard—the dependable Automotive Cable for over twenty years.

Can you afford to specify anything but dependable Packard?

Remember that the reputation of your truck rests upon the dependability of the chassis parts —of which the wiring assembly is a vital unit.

Specify Packard!

The Packard Electric Co.
Warren, Ohio


You can place your order intelligently from our two page advertisement in every issue of the Chilton Automobile Directory and the Automobile Trade Directory
CHILTON

Packard Automotive Cable

The Standard For Over Twenty Years

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THE COMMERCIAL CAR JOURNAL

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STANDARD CAST STEEL WHEELS

For Your Quality Motor Truck

With a big load, the motor truck, shown above, is about to travel over rutty and uneven roads. Fortunately it is equipped with STANDARD CAST STEEL WHEELS, as are thousands of other trucks compelled to constantly operate under adverse conditions.

For STANDARD CAST STEEL WHEELS are specially made of the highest grade electric furnace steel and are cast in one piece to withstand the terrific strains daily imposed on them.

Let us show you how we can build them to meet your engineers' most exacting requirements.

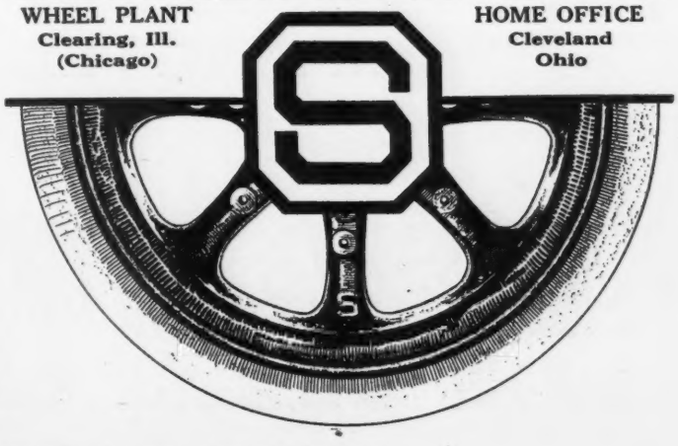
At the Good Roads Show in Chicago more trucks and road cranes were shown equipped with STANDARD CAST STEEL WHEELS than with those of any other make.

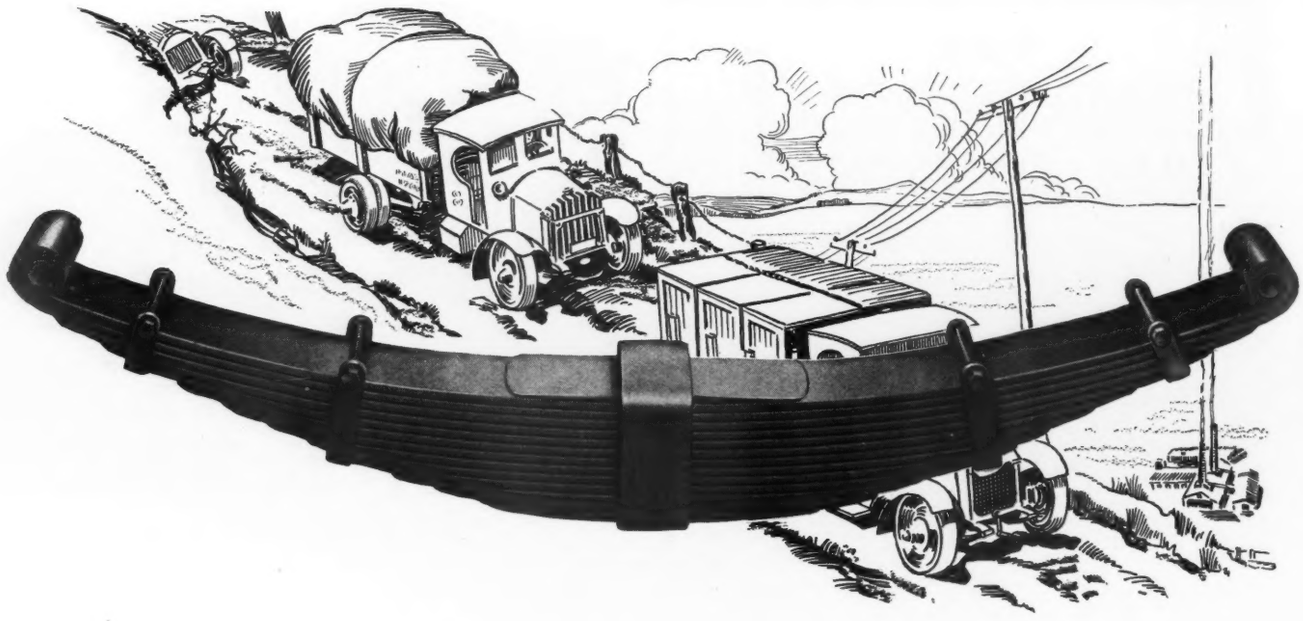
Made by

THE INTERSTATE FOUNDRY CO.

WHEEL PLANT
Clearing, Ill.
(Chicago)

HOME OFFICE
Cleveland
Ohio





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Equip your chassis with Spring-Perch Springs. The acid test of performance will prove them to be real selling assets for you—and your dealers.

Since 1843 the Spring Perch Company has specialized in the manufacture of springs—made to a quality standard.

Why not avail yourself of the services of our spring experts. Send us your specifications.

Compound Springs for Bus Service—suitable for their greatly varying load conditions.

Banded Springs for Trucks—especially desirable for Hotchkiss Drive. Special designs for Speed Wagons.

SPRING PERCH COMPANY

Makers of Springs Since 1843

STRATFORD, CONN.

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The International Motor Truck Contract Offers You Many Such Opportunities

RECENTLY an International Motor Truck representative found business among his regular customers temporarily slow. He immediately made an analysis of his market and began to work on prospects hitherto unthought of. As a result, he was instrumental in forming a community delivery and transfer system which added 7 International Motor Trucks to his sales record. He found the hidden market and developed it.

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Study your market, then write and ask us about the five concrete facts in the *International Motor Truck Contract.* They will help you build a permanently successful motor truck business in any section where there is hauling to do.

International MOTOR TRUCKS

Sizes:

2,000-lb.	Speed Truck
Model 21,	2,000 lb.
Model 31,	3,000 lb.
Model 41,	4,000 lb.
Model 52,	5,000 lb.
Model 61,	6,000 lb.
Model 101,	10,000 lb.

INTERNATIONAL HARVESTER COMPANY
OF AMERICA
(INCORPORATED)
606 SO. MICHIGAN AVE. CHICAGO, ILL.

INTERNATIONAL SERVICE REACHES EVERYWHERE

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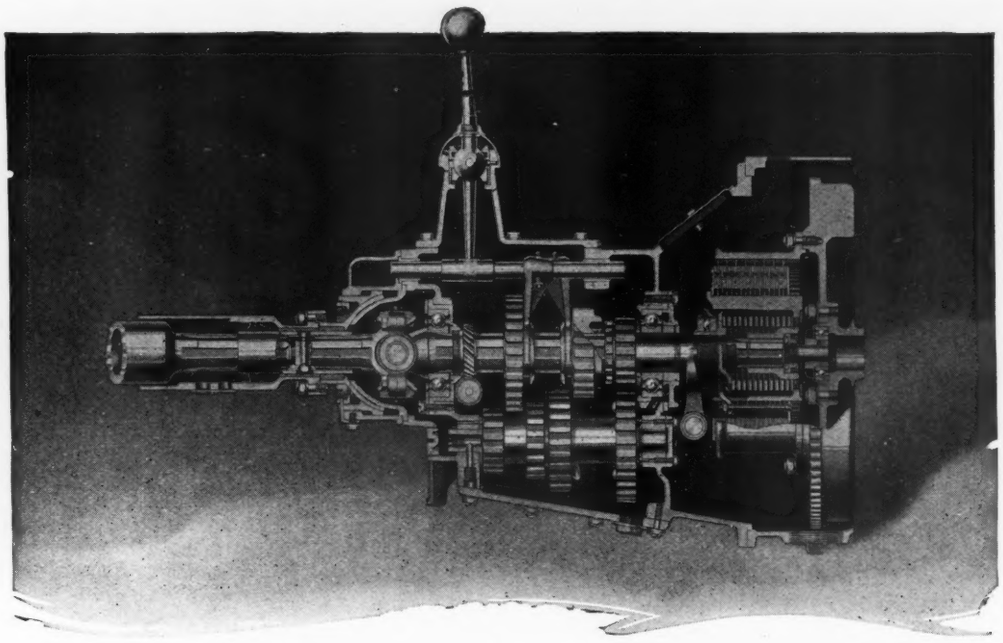


Where Parts Are Inaccessible

Ball Bearings Give the Greatest Protection

CLUTCH-PILOT and mainshaft transmission bearings are two of the most vital shaft supports in a car, yet they are hidden away where inspection is difficult and adjustments and replacements are costly to make.

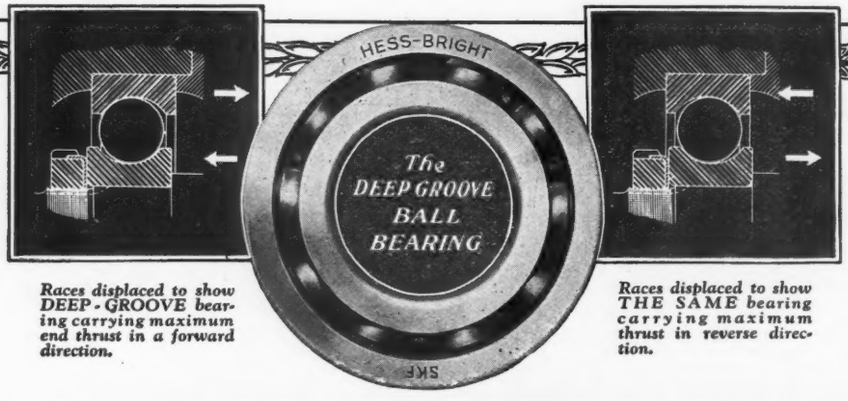
Deep-groove ball bearings made by the Hess-Bright Manufacturing Company protect these vital parts in the Lafayette car. In this type of bearing, radial and thrust loads in combination are taken by highly polished steel balls which roll freely in deep uninterrupted grooves accurately ground in the hard steel races. So little wear occurs that even after years of service it is not measurable by ordinary means.

The benefit of the extensive researches conducted by our fully equipped laboratory and of our experience in applying ball bearings to automotive equipment of all kinds is at your disposal. May our service engineers co-operate in solving your bearing problems?

THE HESS-BRIGHT MANUFACTURING COMPANY

Supervised by SKF INDUSTRIES, INC., 165 Broadway, New York City

882



Races displaced to show DEEP-GROOVE bearing carrying maximum end thrust in a forward direction.

Races displaced to show THE SAME bearing carrying maximum thrust in reverse direction.

BALL BEARINGS

The Highest Expression of the Bearing Principle

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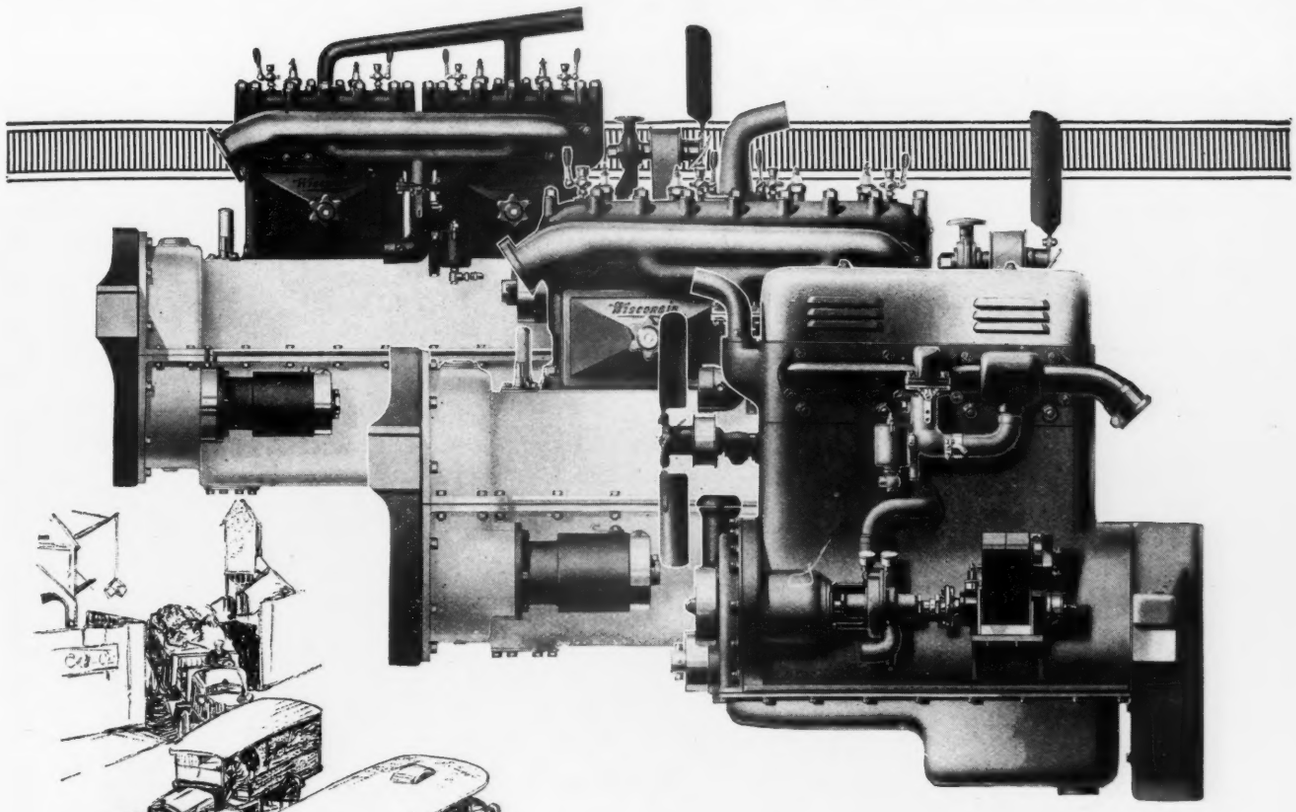

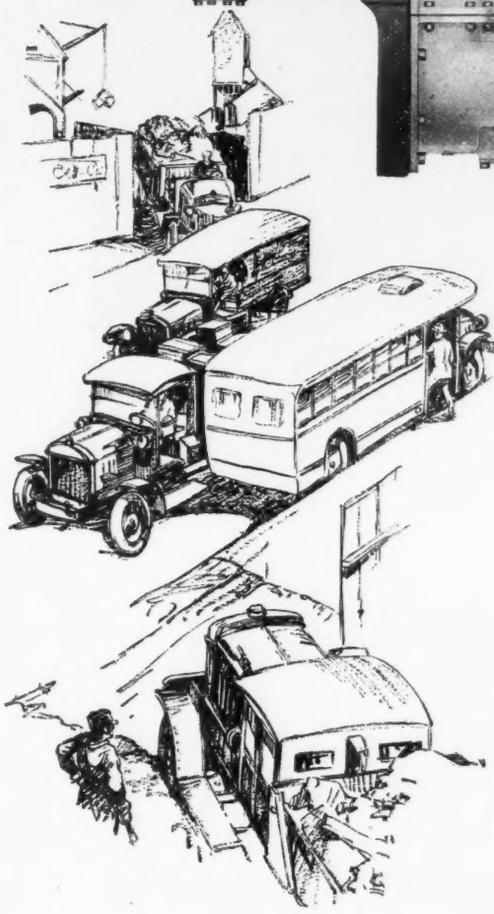

In Trucks That Keep Going

—You'll find Wisconsin Motors.

They are sturdy, enduring, honest in performance and construction. That's why.

Wisconsin Motors are built by experienced engineers—no freak designs that your mechanics have to figure out. They are accessible—simple—fitted to the work they are to perform.

Nothing is skimped in the material and workmanship that goes into them.

And yet they cost no more.

Wisconsin performance figures will sell trucks for you. Are they under the hood of the line you handle?

Offices in New York, Cleveland, Chicago, Los Angeles, Seattle.

WISCONSIN MOTOR MFG. COMPANY
MILWAUKEE WISCONSIN

Wisconsin
CONSISTENT

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Short wheelbase handiness

Every 4-cylinder Autocar truck has the distinctive Autocar advantages

ease of maneuvering in narrow places where motor truck operation might otherwise be impossible

economy of space in traffic, at terminals and in the garage

better load distribution on all four wheels

The sturdy

Autocar

Wherever there's a road

short wheelbase handiness
mechanical superiority
economy
dependability
direct factory branch service

Capacities, 1 to 6 tons
Chassis prices, $1100 to $4350
f.o.b. Ardmore, Pa

Assured transportation for every business need

Manufactured since 1897
by
The Autocar Company
Ardmore, Pa.
Branches in 44 cities

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The Commercial Car Journal

VOLUME XXV PHILADELPHIA, APRIL 15, 1923 NUMBER 2

A Discussion on Selling

Service Station Equipment

This Article Also Describes the Methods Pursued by Some New England Jobbers. The Truck Field Offers Big Possibilities to Concerns That Are Aggressive

By C. P. SHATTUCK

Compelling the Pedestrian's Attention is Linscott's Specialty

WHAT are the best channels of distribution of service station equipment for the manufacturer? How will he obtain the greatest volume and where will it be?

Introduce either of these subjects among a group of those interested in this branch of the industry and the discussions following will be interesting. Some will state that the machinery jobber is the most logical because of his knowledge of mechanics and his trained salesmen. Some will contend that the best sales results will be obtained by distributors or specialists. Others will hold that the automotive jobber will give the manufacturer the greatest distribution or volume.

Is the Term "Machine" Confusing?

If there is confusion in the minds of the manufacturers as to the best method of distribution, there is certainly more in the minds of his prospects. There is confusion because whenever the term "machine" is used it is natural to think in terms of machinery. And it is also natural to link up a "machine" with a large expenditure. This is due largely to the fact that for many years the lathe was used to perform many operations and a lathe and tools to care for all kinds of work ran into quite a sum of money. Milling machines, etc., also involved some expenditure. Only large service stations could afford such equipment.

It is surprising to find that the number of those who have the "say so" in spending the money still continue to think in terms of expensive machinery when the subject of a time and labor-saving machine is introduced. To the dealer particularly a machine is a machine, and machinery costs "lots of money," he argues. After making an investigation the writer finds that the **greatest sale resistance in time and labor-saving machines is due more to the use of the term "machine"** than the price.

Is It the Name or the Price?

It has also been found that the service station manager or foreman can secure the O. K. to a requisition for a tool, such as an electric portable drill, a valve grinder, an engine stand, axle stand, bench, etc., with less effort than he can for a machine that costs the same or less money. To substantiate this statement take the drill press. The service manager wants a drill press, needs one, but he tells the boss he should have a drill press, not a machine or a piece of machinery. Up to May, 1922, 60 per cent of the shops were equipped with some form of a drill press.

What "Machine" Means to Percentage

Take a power grinder. Of course it is a piece of machinery, but is referred to as a grinder and 58 per cent of the shops have them. Quoting a few more statistics: Portable electric drills, 55 per cent; engine stands, 54 per cent; arbor presses, 46 per cent; lathes, 44 per cent; forges, 42 per cent, but when the items having "machine" tacked on to them are analyzed the percentages run as low as 6 per cent. Of

course the utility of the unit must be taken into consideration, as, for instance, the portable electric drill which is said to have 666 uses.

A review of the sales and advertising issued by the service equipment manufacturer shows a tendency towards eliminating the word machine. Take, for example, that employed for redressing valves and stems, a piece of equipment that is in big demand among shops, thanks to the flat rate and competition in service today. One manufacturer of this equipment heads his copy with the statement in large type, "Every Repair Shop Needs the All-Purpose Franklin" and goes on to explain the several operations it will perform. The word machine is employed but once and then as a "super-service machine tool." It is doubtful that if the product were labeled a machine or a piece of machinery that it would attract as much notice as it does.

Who Should Sell Equipment?

All of this discussion brings us back to the beginning of this article and the question—"What are the best channels of distribution and how will the greatest volume be obtained?"

The writer believes that the machinery jobber can be eliminated from the picture. While he is the logical one to distribute heavy and expensive machinery he has not the channels of distribution and contact with the automotive trade which will bring the manufacturer of service stations units the results he desires.

How about the specialist? Some manufacturers have adopted the policy of appointing special representatives and giving these certain territory. In some lines this policy has been satisfactory, particularly with highly specialized units, but when it comes to real volume with the majority of truck and passenger car service appliances **the jobber of automotive equipment is putting the message across and is obtaining the volume.**

For some time past the big jobber, particularly in the large cities, has been intensively developing his automotive service equipment department and today there are many jobbers who may be said to be specializing. They are not selling by catalog, but have developed service equipment salesmen. The men are grounded in the technics of each piece of equipment, the various operations each unit will perform and lately costs of a given piece of work have been compiled and are compared with costs with antiquated methods. **In other words, the trend is towards selling the service station, shop and garage on a straight cost and service basis, and it is going over.** Certain service equipment manufacturers are co-operating with the jobbers by supplying factory experts to instruct the salesmen and to be present when automotive service equipment shows are held by the jobbers.

Equipment Shows Bring Results

Inasmuch as the majority of the lines cannot be packed in a brief case and demonstrated by the salesmen when calling on the trade a number of jobbers have given over large space in their establishments to a display of the various items of service equipment. For example, during the Boston automobile show there were three such exhibits. These events were staged. That held by the Linscott Supply Co., Boston, is an example of how the jobber can put the message across. This concern held its third annual automotive equipment show, the event was well attended and a large volume of real business was transacted.

The success of the show was largely due to the fact that for weeks prior to the events it was brought to the attention of the car dealer, service station, garage and repair shop all over New England by the traveling salesmen of the company. In their calls the salesmen would mention the big event, the new equipment which would actually be demonstrated by experts and thus create a desire for the trade to see the show. It was an invitation affair, explained the salesmen, who were full of pep and enthusiasm.

In time the dealer, service head, etc., received a large envelope bearing his name and address, but in the return address corner and in red ink was the following:

NEW ENGLAND DEALERS'
ANNUAL LUNCHEON
Auto Show Week, 1923

It is a good guess that the contents of the envelope were examined, for the luncheon stunt pulled. Enclosed was a well-gotten up two-color letter. The invitation, also a two-color job, was resultful and a number of dealers wrote and accepted, proving the interest.

The writer attended the show and "listened in" to the demonstrations and discussions on the various equipment. The majority of the visitors were real buyers, and there were many present who will buy when the salesmen follow up. The equipment included electrical and mechanical units, from an ammeter to a burning-in stand. Factory representatives were present and demonstrated. The equipment salesmen of the Linscott Co. were on hand to greet their customers, as was A. L. Hunt, manager of the department, and Fred Linscott, of the firm. Next year the show will be repeated on a much larger scale in larger quarters. The Wetmore-Savage Co. also held a similar exhibit, and this company, in conjunction with the Linscott Supply Co. and American Motor Equipment Co. staged an exhibit of Ford service station units at the Cambridge branch of the Ford Motor Co.

Another New England jobber who features a display of equipment is Tarbell-Watters, Inc., Springfield. The jobbers who are specializing are very successful in attracting the out-of-town trade to visit the showroom and see the units set up. These displays are continued throughout the year and when a new piece of equipment is added the trade is notified. The salesmen cash in on this.

A Part of the Interior Display Covering a Great Variety of Shop Equipment

Truck Service Not Considered

As near as can be ascertained the bulk of the merchandising by the jobber is with the passenger car dealer and those shops servicing cars. The reason for this is not so much that passenger cars represent 92 per cent of the registrations but rather because the flat-rate method of service has been sold to the passenger car dealer **and to practice the flat rate successfully and profitably the shop must have good equipment.** It is to be regretted that the truck dealer is not as yet sold on the flat rate, consequently, he is not so easy to interest in time and labor-saving equipment, although he should be.

With 1,763,378 motor trucks registered in this country and figuring on the basis of $140 for labor and service per truck, $246,882,920 will be spent in 1923. The writer believes this figure will compare very favorably with that dealing with the passenger car. If we assume that the average service station equipment saves 20 per cent in labor and the figure is

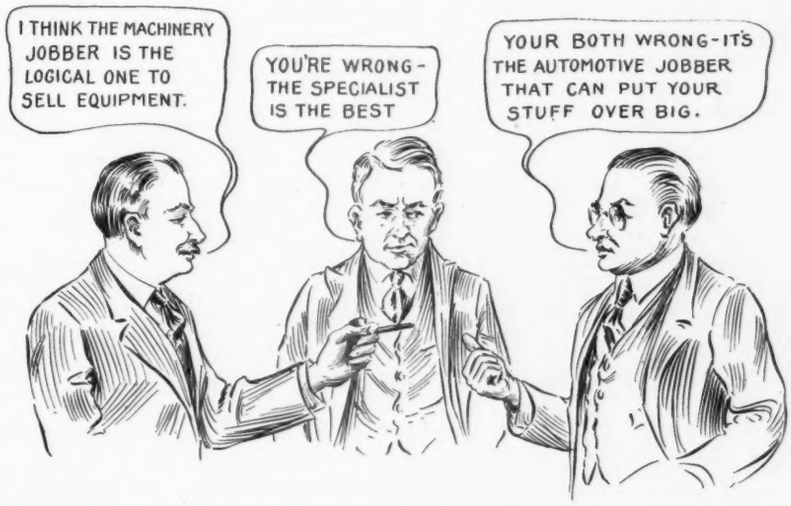
not high there would be over 49 million dollars' worth of labor conserved. If this economy were to be divided 25 per cent, saving in service costs to the truck owner and 25 per cent credited to the shop for extra profits there would still be available $25,000,000 to be credited to the investment in equipment. And as each piece of equipment was charged off there would be available cash for additional equipment plus opportunity to still further reduce service costs to the truck owner.

They Repair But Do Not Render Service

Dealing with the equipment subject from a strictly truck point of view it must be considered that there are 45,000 shops "repairing" trucks. The word service is not employed because too many of these shops are repairing trucks, but they are not rendering service. There are 2500 exclusive truck dealers with exclusive truck service stations and to sell these the economics of essential equipment is, the writer believes, up to the manufacturers of the equipment.

Getting back to the jobber who specializes in service equipment we find that some are selling to the truck stations, but from what the writer can deduce in talks with jobbers and their salesmen, co-operation by the manufacturer would make it possible to sell as many truck dealers as car dealers, in proportion to the market.

The manufacturer of service station equipment concentrates upon the passenger car service station by educational sales and advertising methods. Service propaganda is spread far and near to the passenger car dealer. The factories of the car makers preach service station equipment to their dealers and some go as far as to make up lists of equipment which have been given the acid test in the factory before being recommended. Car factories compile flat-rate operations for their dealers. Some companies will send service experts who will live with the dealer's service head until the flat-rate system functions. But **how much of this is done for the truck dealer?** Not much to the writer's way of thinking, but more will have to be done and before long, because truck selling is becoming so highly competitive that it will take more than discounts to satisfy buyer.


I THINK THE MACHINERY JOBBER IS THE LOGICAL ONE TO SELL EQUIPMENT.
YOU'RE WRONG - THE SPECIALIST IS THE BEST
YOUR BOTH WRONG - IT'S THE AUTOMOTIVE JOBBER THAT CAN PUT YOUR STUFF OVER BIG.

A certain manufacturer of service station equipment in discussing the truck service station field said: "The exclusive truck service station business is small and is cared for by the regular channels of distribution," but admitted no analysis of this field had ever been made by his company. An analysis would have revealed that the sales resistance experienced in the field is not due **as some allege to the truck dealer's finances, but to the fact that the equipment manufacturer has relied upon his passenger car equipment messages to get across to the truck dealer, but they do not reach the truck dealer.**

Jobbers Need Co-operation

The manufacturers of replacement parts and supplies, exclusive of fuel, lubricants, tires and special material, had a market of $845,000,000 in 1922. Why? Not so much because there was a demand for replacements but because those manufacturers who secured the business went after it by a **distinct appeal to the truck trade,** and much of the material was distributed through jobbers and the manufacturers co-operated with the jobbers by an intensive educational campaign directed at the truck dealers.

I believe that equipment manufacturers could increase their volume sales in the truck field by first conducting an educational campaign aimed at the truck dealer and, second, enlisting the aid of the truck manufacturer along the same lines as has been done with the passenger car maker. The ground could be prepared by educating the truck dealer to what the well-equipped shop means in sales and profits if the same message that is directed at the car dealers were to be aimed at the truck dealer. The jobber would cash in by such co-operation. The classifying of the truck dealer and his service station as the "same as the passenger car" is an error. Oil and water do not mix. Neither do the truck dealer and passenger car dealer. It requires more intensive salesmanship for the jobber's salesmen to sell the truck dealer than the car dealer because the latter has been educated by the equipment maker and a demand created by the flat rate plus competition. The equipment maker who visualizes the truck service field will be the one who will cash in. The principle is the same, the manner of approach only varies.

Australian Distributor Visits America

W. B. Larke, one of the managing directors of Larke, Hoskins & Co., Ltd., importers of motor vehicles in Sydney, Australia, arrived by steamship "Tahiti" on March 12th. He spent a few weeks visiting the principal centers of manufacture of this country. W. B. Larke is a well-known figure in the motor trade in Australia, having been president of the Motor Trades' Association for New South Wales for two years, he at present holds the position of vice-president, and also acts in other representative capacities in connection with the trade generally.

The firm of Larke, Hoskins & Co., Ltd., specializes in the handling of commercial vehicles, including the Reo Speed Wagon. They have recently taken up the representation for the State of New South Wales, Australia, of the new series Maxwell and reports it is exceedingly popular.

Showing the New 30-Passenger Trackless Street Car Recently Built by Larsen & Krog, Fresno, Cal., for the Fresno Motor Bus Co.

The body is mounted on a special Indiana bus chassis and is of sufficient height to allow passengers to walk the aisle erect. Right front door is driver-controlled, working in conjunction with an automatically folding step. Other points of construction are rattan seats, electric signals, dome lights, and Pullman drop curtains.

Who is to Blame for Mediocrity in Truck Organizations—The Dealer or Manufacturer?

This Article Deals With This Question From the Dealer Angle. Things the Dealer Could and Should Do to Increase His Business

By BEVAN P. Y. JORDAN, Vice-President Traffic Truck Sales Company of Philadelphia

THERE is hardly a merchandizer of motor trucks in the entire United States, who has not given much thought and study in the year closed, to sales analyzation, insofar as it affects personnel, campaign and organization.

Pages, even books might be written of programs covering special campaigns, that truck merchants have labored to employ, not alone to attract the buyer, but the man to sell the buyer. Assembled together, this library would comprise a most formidable collection of sincere endeavor, upon the part of those who contributed, but with how much real constructive and definite data, to guide those who will consult it!

Motor trucks, especially since 1917, have represented every essential to warrant sales representation, appealing to the most aggressive individual, yet as an industry, the sales body as a whole unfortunately has been but mediocre, when compared with his brother dealer of passenger cars.

What are the reasons? Is the manufacturer or dealer to blame?

Personal observation and study of the question by the writer has satisfied him that much can be added and refined by the manufacturer in his manufacturing and relationship with the dealer, as does much remain to be done and improved upon by the dealer. The job ahead is a true fifty-fifty proposition, and the subject of both sides, of such pretentious proportions, I have elected in this article, to deal only with the side of the dealer.

There appear to me three cardinal factors absolutely essential to exploit a successful truck agency—and these three are usually found wanting in the average truck organization: Enthusiasm—Loyalty and Ability of Personnel—Service.

Enthusiasm as a Factor

Enthusiasm is a subject in itself where pages may be written to expound it, as a fundamental factor in sales. As a force, it is a factor for which the dealer is almost solely responsible, in his leadership to inspire those who sell for him. It is axiomatic that no movement, however, small or large, succeeds without effective leadership, which must not only command respect, but enthuse. In motor truck sales it is pre-eminent.

It does not require magnification to appreciate that in comparison to the passenger car salesman, the purveyor of trucks has little from the standpoint of the comparative commodities to create enthusiasm. There is born to the passenger car, as with any merchandise of luxury, an enthusiasm, instantly inspired to those associated with it, which to the motor truck—must be created. In the writer's estimation this enthusiasm has constituted the major factor in the phenomenal record produced in passenger car sales, by a selling organization, unquestionably without equal.

Passenger and Truck Sales Methods Differ

Advertising — sensational sales campaigns—social influence—varied customers to solicit—with new appeals to make and countless other diversions in the routine of the passenger car man, breed natural enthusiasm, and an enthusiasm which stays put. Truck selling, or necessity selling, opens little opportunity for those of sales attack, beyond the customary canvass routine and the usual story to make the sale. There is no grotesque or whimsical advertising to help —no sensational campaigns, as are employed by the passenger car—no social life to aid the sale, nor the help, perhaps, of character analysis, in appealing to the whims of a fanciful prospect, who may judge car value by a unique vanity box, or a coat of paint—just the same story each time, and more stereotyped each time it's told.

Do you wonder at the force I attach to enthusiasm as a vital factor in truck sales, and the importance leadership means to make this enthusiasm materialize, when you study the significance of the foregoing?

It is quite possible to establish enthusiasm in truck selling to almost as great a degree as in passenger car selling, but it remains for you, the Dealer and Leader, to put it there. None of it is naturally born—all of it must be made.

Perhaps, aside from the importance of securing a sales administrator, whose manner of leadership shall command not only the trust, but respect of his men—the most potent asset in the writer's estimation is for the dealer to establish by social activity within his organization, sufficient life, to inspire enthusiasm, and keep constantly at high pitch, his sales force. A Sales Club composed of every member of the organization from the executives to the personnel, meeting one evening each week, where a program of instruction and entertainment is arranged —will inspire not only your salesmen, but every member of your organization. I have personally witnessed the magnetic influence of this "within organization social club life"—where it completely rejuvenated an organization, that had deteriorated almost beyond recovery, and with the new enthusiastic life their "social" provided—in most astonishing time, put the organization solidly upon its feet —and helped to keep it there.

A meeting night to cover a theatre, another evening to banquet, where some prominent speaker may talk upon the industry, or some other interesting kindred subject, are suggestions that will materialize the enthusiasm a successful sales organization may well strive for. It is worth special mention, to preclude the danger of stereotyped affairs, which the usual sales meetings are apt to grow into, to lay stress on your "social" to always be as different and varied as you can make it.

Loyalty and Ability

No salesman can sell his product unless he be loyal to it and the house he sells for. A man possessed with only mediocre knowledge can triple his ability, if he is loyal to his employer and his merchan-

dise. A disloyal employee, regardless of his other qualities, is the missing link of the sales chain in any sales organization. Loyalty should be taught and inspired at the inception of a man's entrance to his duties. It is at the source where accomplishment is made. It is inspired and held by the reciprocation of trust every employer should vest in his employee. Every human being responds to the regard and appreciation of his efforts, as does every man enjoy congratulation and praise for a spirited and successful effort of his endeavor. A pat on the shoulder—a word of encouragement—is inexpensive. It breeds and sustains loyalty.

The average salesman engaged in selling motor trucks is usually but feebly versed and equipped mentally to deal intelligently with the future and present buyer of transportation. Analyzation of your sales will disclose the buyer has demanded more of a technical nature in regard to your truck, than he used to. He wants transportation costs—gasoline consumption—detailed specifications of vital units—costs of investment, if financed—adaptability of this model and that to his requirements, and countless other information, which only an efficient and well informed salesman can give. Motor Trucks are being sold as transportation units, and as transportation units only.

To some there is a mistaken belief that the less mechanical knowledge a salesman possesses, the more successful the salesman. This may be somewhat true of the passenger car business, but a very mistaken conception of merchandising motor trucks. It is obvious from the enlightening information set out by the truck manufacturer, through trade magazines and technical periodicals, the motor truck user is becoming more educated and enlightened on his transportation requirements, which is further significant why the large owners are employing specially trained transportation experts to manage and supervise their transportation departments. Can you expect these buyers to deal with a representative of your product and to become impressed with it—who is not qualified to answer the potent questions these buyers of transportation are asking?

It is my opinion every truck manufacturer should prepare a manual or dictionary of instruction, which can be used by the dealer to educate his salesman on the sound constructive lines appertaining to the salient mechanical features possessed in his product.

These manuals should be prepared in text lesson form and conducted by the dealer. Time is but little distant when every truck factory, who hopes to successfully survive, will conduct a school of sales instruction for the benefit of their dealer sales forces, just as has been so successfully done by some of the large manufacturers of cash registers, adding machines, and insurance companies.

The majority of truck buyers today are buying transportation and demand to be sold transportation—not names—colors of paint, and fanciful descriptions.

The instruction suggested will educate a sales force to a thorough knowledge of its product and a further intimate conception of transportation needs to qualify an intelligent sales talk to the prospective buyer. Obviously a salesman so developed will command not alone the respect of his client in the efficiency shown by the complete knowledge he possesses of his product, but he personally reposes in the confidence of his statements and recommendations, just as would be accepted from a lawyer to whom you seek counsel.

With general acknowledgement by the leaders of the trade that future possibilities for increased sales lie in the development of new national markets that have not yet seen the need for motorized service—how much more paramount becomes the fact for those of us who are actually to seek these new potential markets, to be possessed of the knowledge necessary to expand and develop them? The motor truck has long ago taken its position as a factor of the nation's transportation system and as a utility—can only be merchandised as a utility.

Service

A Motor Truck Sales Agency that has a reputation for good service possesses an asset of incalculable value. It is service which brings patronage and repeat orders—and which, in the opinion of the writer, is more salient a factor in selling motor trucks than in any other line of merchandise, including passenger cars.

It is service which keeps business once it has been secured. If a customer soliciting your stockroom is answered his question in a painstaking manner—whether to inquire the price of a part, or if you have it in stock—if he receives prompt attention on inquiry to your departments, not necessarily of matters in your shop—if your accountant can help him figure his costs in operation or other finance matters—if your sales manager makes frequent visits and telephone calls to learn if his truck is functioning in satisfactory manner—it is these acts of service, in conjunction to rendering prompt and properly priced capable repairs that is really service.

Good service depends not alone upon the actual things done, or the small cost for doing it—but upon the way you do it. There is no truck merchant too large, or none too small, who can afford not to develop and maintain a most exacting and obliging personnel, in striving to cater to the needs of his customers, regardless how small and trifling the request might be.

Too many dealer organizations seem to consider that service belongs entirely to the shop. Repairs, the emergency truck and selling parts, usually constitute this mis-abused mutilated word. Service starts with no one department of your business, nor is it confined to any one. Where it renders its first act to your customer might be with the porter or the telephone operator of your institution.

There is no solution to securing service within your organization so well as that of explaining over and over again to your employes the salient factor it represents. You will never exaggerate when you tell them their very positions depend upon it for no sales agency can long endure, regardless of the merchandise it may handle, unless it appreciates the full significance of the word and renders it one hundred per cent.

Close intimacy with your owner is one of the surest ways to learn if you are rendering real service. The free monthly service inspection can be made to provide this close relationship upon utilizing a plan as employed in our own organization, in which we provide a printed form to cover the inspection when made, and which never is given the owner at the time of inspection, but brought to the

Electric Railways Adopt Motor Buses on Big Scale. Pacific Lines Purchase 81 Buses

The White Co., Cleveland, recently received from the Pacific Electric Railway Co., an order for 71 White buses. At the same time the Los Angeles Railway Co., placed an order for 10. The buses, which are of the 25-passenger enclosed type, will be used to supplement the street car and interurban service of both lines in Southern California, some of them to be used jointly by both lines and others individually, according to the needs of the various sections served. The order is significant in showing leading electric railways have turned to bus operation on a large scale to enlarge their facilities and give the public a better service. The investment in this case was well over half a million dollars.

general manager, who can personally observe not only the present mechanical condition of the vehicle, but remarks the owner has made, either complimentary or derogatory, which is notated by the inspector as religiously as the notation covering the condition of the motor or axle. Typewritten duplicate of this inspection is then forwarded to the owner and should any comment be noted unsavory to either the truck or the company, personal executive attention is immediately given, leaving no chance for the customer to harbor what may or may not be a justified complaint.

Next to personal service rendered, no agency can overlook the vital question of shop charges. There is no question the flat charge plan will eventually replace the old conventional parts and labor invoicing. Nearly every leading factory, both truck and passenger car, are endeavoring to work out a plan of this kind for the dealer, in anticipation of its constantly increasing popularity.

While some firms will not be able to compile a "Menu of Prices" covering every common repair, everyone will be able to start his "Menu" to include such items of burning carbon, grinding valves, general tightening up, changing crankcase oil, lubricating chassis, taking up main bearings, etc. You will find that not only with the announcement of this plan will come a general favor of your customers, but it will prevail considerably in adding to your shop revenue, from the additional repair work influenced.

Two hundred and fifty thousand commercial cars are estimated to be sold for 1923, not including those for export. The increase over 1922, while not sensational, is consistent enough to prevail an optimism for those identified in the industry to look forward not only to attaining the figures estimated, but of passing them. There are many replacements to be made —and many owners to be secured from markets hitherto untouched—but no dealer may hope to attain his share, unless he has already appreciated the fact that motor trucks are only sold as transportation units, and that enthusiasm, loyalty and ability of personnel, and service, within his organization, are incalculable requisites.

Heavy Snowfalls Failed to Affect This Bus Line

THE six-bus fleet of T. F. Conlin, Worcester, Mass., certainly deserved the public approbation it received. Despite the obstacles of natural foe of transportation—snow and other subtle activity on part of competitive agencies—Conlin's fleet doggedly proved its worth in maintaining its schedule by providing uninterrupted service.

Snow conditions in this region were exceptionally trying; in fact, the total snow fall reported for Boston territory this year is well over 100 inches; the worst known in a decade. As one bus operator put it, he was contending constantly with about 5 feet of snow. There was practically no rain, but one snowfall after another, which piled up rapidly.

Although the elements conspired to work his downfall, Conlin, with his headquarters at Federal and Main Sts., Worcester, managed to keep his service in operation throughout the entire winter to such points as Leicester, Spencer and Roachdale.

The many troubles of the fleet were not confined to the vagaries of winter alone. A rotary plough employed by a traction company of this section piled the already high snow right on the roadbed of the highway which parallels its tracks. Although this act was contrary to the State law nothing could be done to prevent it. But it pointed to one conclusion. In view of the suspension of service by the traction company heretofore when the snow was bad the pressing in service of the rotary plow seemed to be an effort to prevent the buses from operating. This competition has also resulted in the continuous operation of the cars of the traction company, for operation continued throughout the season in spite of the snow, the worst for years.

The bus operators, however, cleaned off the road and kept in operation. The undertaking was tremendous, as the heights of the cuts were high. For example, a cut at Breezy Bend on the road to Roachdale from Worcester was over 10 feet. The public, of course, had the use of the road continuously on account of this work done by the bus company. Naturally this entrenched the bus company still more firmly in the good graces of the public.

All six units of this fleet, familiarly known as Ultimates and made by the Vreeland Motor Co., Inc., Newark, N. J., are of 156-in. wheelbase, carrying 17 ft. 6 in. bodies with cross seats. All were equipped with 40 x 8 rears with the exception of one, which was equipped with dual 6's. Mr. Conlin explains that, although he prefers dual 6's better than 8's, the latter are much to be preferred when negotiating through heavy snows, as the former fail to traction as satisfactorily in snow. Chains were used throughout the winter.

How Conlin's Fleet Made a Name for Itself

Automotive "Maintenance Engineering" —A New and Inviting Field*

"—Today There Are Nearly Twelve Million Motor Vehicles Operating in the United States. Keeping These in Operating Condition is a Big Enough Job to Warrant a Good Many People Making It Their Principal Business in Life"

By H. R. COBLEIGH, Secretary of Service National Automobile Chamber of Commerce

ENGINEERING is doing anything scientifically and efficiently as contrasted with just doing it. The definition indicates exactly the difference between service as we now know it and what it will become when it is dignified to the status of "maintenance engineering." As long as we delegate the repair and upkeep of our automotive equipment to hammer-and-wrench mechanics we will not have efficient nor satisfactory service from the owner point of view. If we apply to maintenance some of the same sort of engineering that has been put into the other ends of the industry, the industry will continue to spin along just as wonderfully as it has in the past. The trouble is now that it threatens to spin in one spot instead of making any progress if we do not do something about making the ownership of motor vehicles more agreeable and economical to friend owner.

Seller Always Responsible

With most articles of trade the maker and seller cease to be concerned after they are sold and pass into the hands of the user. This is not true of automobiles. The manufacture of a car is the creation of a responsibility. Throughout the useful life of the machine the owner is dependent upon the manufacturer and the dealer for parts to replace those that wear out or are broken, and upon the dealer or independent repair shop for overhaul and repair work. This, commonly known as service, therefore constitutes a third branch of the automobile industry in addition to the two, common to other lines —manufacture and sales.

And why should we not have engineering in the automobile operating field just as much as in railroad operation? Why has it taken automotive engineers so long to appreciate the opportunities for them in the maintenance branch of the business? Where would our railroads be today if the engineering was confined to the production of their rolling stock. * * *

As a matter of fact the history of the automobile antedates that of the railroad. The first self-propelled vehicle ran upon the highway direct, but because roads were not good enough for machines at that time and could not be improved except at prohibitive expense they decided to improve two strips only and so laid rails. Hence it was that the steam railroad developed faster than the automobile. The history of the automobile industry is not so old. It dates back little more than two decades and is most remarkable because in that time it has grown to be the second largest manufacturing industry and today there are nearly twelve million motor vehicles operating in the United States alone. Keeping these in operating condition is a big enough job to warrant a good many people making it their principal business in life.

Today Era of Maintenance

The automobile industry has been marked by three stages: In its development it began with the Experimental Stage, * * * the second stage was the Production Stage, * * * now we have with us and ahead of us the third stage, the Maintenance Stage. From now on cars are going to be designed for more facile and economical upkeep and the organization in the field, which has the direct contact with the motoring public, is going to work out the problem of doing this work with the least expense to the owner and to his greatest satisfaction.

* * *

Evidences of this growing appreciation of the importance of service are to be found on every hand. The manufacturers showed it by establishing the Service Division in the National Automobile Chamber of Commerce nearly four years ago, for they appreciated that the continued prosperity of the automobile industry is predicated **more upon the satisfaction owners receive from the service rendered them than upon any other instrumentality to create sales.**

The dealers are fast coming to appreciate this same truth as evidenced in their discussion of the subject before their trade bodies and the part they cojointly take with their service men, or the latter take independently, in forming and attending the meetings of local automotive service associations.

Then another indication that service has become a vital part of the industry is manifested in the increasing amount of space that is being given to this subject in the columns of the trade papers.

Another gratifying demonstration of interest in service is the attention being given it by the meetings of engineers—your own meeting tonight, the joint meeting of the Metropolitan Section just a few weeks ago with the Automotive Service Association of New York, filling the assembly room of the Automobile Club of America and listening to papers from eminent authorities representing both the engineering and service field, the meetings on service held by the Society of Automotive Engineers in Chicago during show week for the last three years, and the numerous other engineers' gatherings that have been given to this subject—all go to show that the engineer is becoming actively interested in the maintenance end of the great business of motor transportation.

* * *

Service Six Times the Production

Now, as to the relative size of this service or maintenance field as compared to the production field. Well, here are the latest figures. We are producing at present around two and a half million cars and trucks a year, but there are in use eleven and three-quarter million—a ratio of about one to five. Inasmuch as the average life of a car is six years, it means that when the dreaded saturation point is reached we will be constantly servicing about six times as many cars in a year as we produce in that time.

The saturation point, however, will not be reached just as long as it is possible to still further reduce the cost of maintenance, for the lower the cost of upkeep can be brought the larger will be the market, that is, the greater will be the number of people that can afford to maintain motor vehicles. * * *

Service has been regarded by the dealer as a necessary evil. The service department was a place that he had to have to put the car in condition for the road after it was received from the factory so that it could be operated by the purchaser, and then to keep it operating for the period of the guarantee until all chances of comeback were gone. This was and still is a necessary function of the service department, but it comes under the head of

*Extracts of paper read before the Washington Section of the Society of Automotive Engineers.

what we will call "warranty service." It must perforce be largely free, or at least must have been paid for in the purchase of the car, hence on this class of service the service department cannot of itself show a profit.

The other kind of service is "Maintenance Service" which is the kind that every car or truck owner must have after his guarantee has expired, if not before, and is something that should be furnished to the owner throughout the life of that vehicle. It should not be regarded as in any sense to be given away as a matter of policy, or anything else, for the building up of good will alone. Instead it has the right to be conducted at a profit, but it should be conducted at a reasonable profit and the cost of it should be kept down. The endeavor should be the same as in any other line of business, to reduce cost and thereby increase profits in the greater amount of business done when the charges are known to be moderate. It is a merchandising proposition and as such subject to all the same laws that affect other lines of business. Competition will be felt and will be the life of this business as much as that of any trade.

Conscientious Engineers Needed

I know there are some engineers, but they are fortunately getting fewer, who think that service is beneath their dignity and no doubt there will be many who will ask, "What is there that the engineer can do for the service field?"

I should answer this first by saying that, in a general way, a great deal will be accomplished when the element of engineering conscientiousness is injected into service, for one thing. This is a more or less abstract idea to discuss but I think you will get what I mean when you consider how important it is for everyone in the automobile repair business, from the engineer down to the humblest mechanic, to keep in mind his responsibility for doing everything thoroughly. In other words, there must be integrity in the work, especially for the sake of safety, remembering that lives depend upon the standing up of the job. The bridge engineer feels this responsibility. He knows that the public put their lives in his hands and he endeavors to be faithful to his work so that he may never have cause to regret a neglected precaution that he might have taken. The automobile repairman does not always realize that he is just as responsible and that everything that he does must be checked and checked again in the interest of public safety.

Service Next Reducible Factor

Engineers have labored earnestly and commendably for lower cost of fuel and more economical use of it, but we know that gasoline is one of the smallest items of expense in running a car or truck. Repairs and overhauls represent the bulk of maintenance cost and in these the biggest reducible element is the labor charge. Improved design to increase accessibility and reduce the time for overhaul operations will have increased attention from now on and go far toward accomplishing the desired end, but there would yet remain a great deal to be done.

Now as to some specific way in which the engineer may interest himself in the maintenance field. I will give only a few suggestions but they will be good enough to unfold something of the possibilities, and your imagination can supply the rest.

Maintenance Should Follow Production Methods

Suppose, for example, we make a study of the execution of work in the repair shop and contrive ways and means for performing it that approach more nearly to the methods obtaining in the factory. If cars were built as inefficiently as they are overhauled they would cost about four times as much as they do. Conversely if they could be overhauled as efficiently as they are built the work could be done for one-quarter its present cost.

While this ideal may not be attainable, certainly much can be done by concentrating the work in fewer large shops, so that the volume of work handled would justify the installation of labor-saving machinery and the employment of processes that small shops could not afford. At the same time the employes, by specializing on the different operations performed, would become so expert that the labor cost would be greatly reduced. If the smaller shops would confine themselves to minor repairs and adjustments, sending units requiring rebuilding or overhauling to these specializing plants, the work could be done better, quicker, at half the cost to the owner and with equal or greater profit to the individual shop than is possible, while the little shop attempts to do it all with inadequate equipment and less experienced help. Herein lies a practically untouched field of wonderful opportunity in which engineering talent might accomplish a great work along lines of more efficient organizations, shop layout and equipment, motion and time studies, special tools and training of operatives.

Business considerations alone are dictating the policy of giving prices in advance for service work. It is the customary way of selling any article of merchandise and, after all, service is merchandise, although of a somewhat intangible form. Right now the system of "flat-rate" charges for service work, as it is commonly called, is being actively studied and rapidly adopted by purveyors of service. It is an inevitable evolution from the careless practices of the past. And the customer will not be the only one to benefit, for it will react to the great good of the establishment selling service, because it will bring competition into the picture, enabling the owner to shop for his repairs, and will create an incentive for every shop to study its efficiency and reduce its overhead costs.

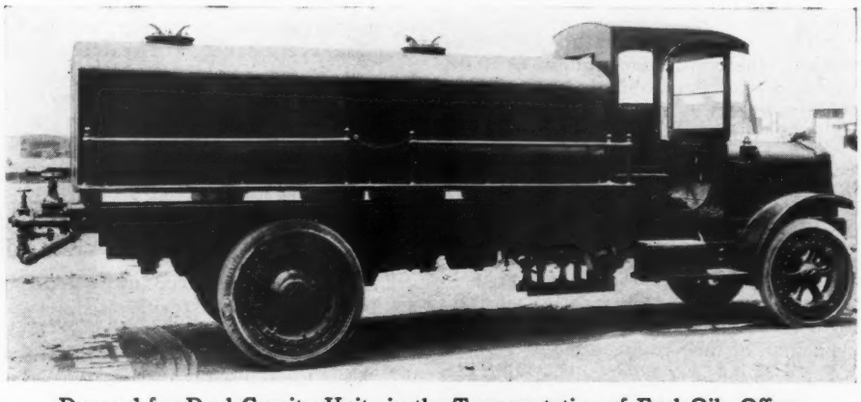
Where the Engineer Fits in

Here is where the engineer is going to be called in and it will become his part to study layout and equipment so that just as little hand work may be necessary as possible, and just as much may be done by machinery as can be, for man power is very much more expensive than mechanical power. Let the engineer then begin to study repair shop efficiency and it will be found probably that the average service station can be at least 75 per cent properly equipped at an expense that is entirely reasonable. It may cost lots of money to make it 100 per cent perfect, but at least great strides can be made in the introduction of simple tools and equipment to effect time saving.

Then will come the logical sequence of the establishment of flat-rate charges for service—paying flat rates to the mechanics for their time. In other words, piecework will become the order of the day in the repair shop just as it has long been the rule in the factory. If time studies have paid in connection with production they will pay in connection with maintenance. We must put some incentive in the way of the workman to make him anxious to reduce the time he spends on a job. There is where the installation of the bonus system and studies by experts in shop management are needed.

Reducing the Time Element

Short cuts will be a natural development and the result will be more profit to the service station and less expense to the owner.



Demand for Dual Gravity Units in the Transportation of Fuel Oils Offers Another Truck Sales Outlet

A fuel oil tank differs slightly from a gasoline tank in that it is larger in capacity and has but one or two compartments. The above illustration shows the outfit of the Commerce Petroleum Co., of Chicago, used in the transportation of fuel oil. The tank is of 1500 gal. capacity, semi-rectangular in shape and has three-inch piping and valves. The shut-offs are of the gate valve type. No bucket box is furnished for the tank as the fuel oil is hosed off through the outlet pipe. This feature also permits accurate accounting as to gallonage. The body is manufactured by the Heil Co., Milwaukee, Wis.

One striking example of what is possible probably in very many instances, is the report from one factory that had been making a study of a particular operation that it had been able to reduce the time required to perform it from seven hours to two. This is not an extraordinary case.

An instance has been reported of an investigation of the cost and time required to do a certain operation in truck overhauling which was made by a factory representative. The difference in time and cost between the lowest and highest was over 300 per cent. Certainly there is an opening there for the engineer.

One of the problems for engineers is the making of the help we already have more efficient, and working out means and methods for them to perform their work with less manual labor and more accuracy and speed. I look to the time when the cobbler shop methods that at present prevail in the repair of automobiles will give place to really scientific repair work, when specialists on different parts of the car will be developed and automobile overhauling and repairing will be handled more along the lines of manufacturing.

Educating the Shop Personnel

Education of shop personnel and the rating of mechanics are subjects well deserving the engineer's attention, for they are sadly needed. This education means developing them not only in mechanical ability, but letting them understand something about the reasons for what they do and why the parts function as they do. Unfortunately there are too few machinists already in the automobile business and too many mechanics. The difference is that the machinist does not work by rule of thumb, but has some conception of why he does his work as he does it. There is the same difference between a machinist and a mechanic that there is between a horticulturist and a farmer. The first is the scientific sort. In many cases we are allowing our cars to be operated upon by butchers instead of surgeons. The advantage of higher education for the operative is not alone that he will do a better job because he knows what is expected of the part upon which he is working, but he will actually do a cheaper job, also, because he will seek to cut down the time necessary, and will develop tools that will save time and labor. It is therefore in no sense beneath the engineer to be concerned about the personnel in the service station.

I make no apology for bringing in the business aspect of the service problem, for the engineer who overlooks the importance of the dollars and cents or commercial part of any work done for a client is not fully alive to his responsibility. The engineer who dreads the appearance of being too commercial need to better appreciate the very close relationship that exists between true engineering and business, so the engineer can well afford to study methods in management even up to and including the relations with customers. Here, also, the importance of cleanliness, courtesy and honesty in the treatment of car owners are again subjects in which he can well concern himself.

After all, service is not taking care of cars, but taking care of car owners and the actual repair of an automobile, while a means to the end of owner satisfaction, is after all an incident to the real object accomplished. A perfect job loses all its value measured in future business, either from the customer in question or the friend he influences, if it fails to satisfy because the steering wheel was greasy or the service salesman or other employe who waited upon the customer fell short in politeness.

It is the total result that counts and the engineer who lets his perfect mechanical job be spoiled in effect by a careless or indifferent workman, even though he may think it is someone else's business to oversee such details, suffers in prestige nevertheless.

Another thing which the engineer can do for service is to study and report upon the results in actual use of the designing engineer's output. Too often in the past the factory engineering department has either ignored, or at least not given due weight, to the reports from the dealers' service stations, but there has been some excuse for assuming that the dealer service personnel is not competent to judge. If there were more engineers in the service end they would get a better audience from the engineers in the designing end, and we would find lots of these things which are time consuming today corrected in the design, and production alone would not be the guiding star to the designer in the layout of a car. Unquestionably a study of the design from the standpoint of maintenance would result in the production of a car that would cost less, far less, to maintain than many of the cars with which we have been familiar in the past.

This Car Doesn't Exist

Probably it is not unfair to say that there is not a car today that has been so thoroughly well designed from the maintenance standpoint that it would be impossible to improve the design and still further reduce the time necessary in the performance of common operations. There is yet something to be done there that deserves the engineer's attention.

If one will allow his imagination to play over the possibilities for the future, when engineering really gets to work with the maintenance problem, he can readily draw pictures of large central service stations, thoroughly equipped with machinery to handle the overhaul of cars very much as they are handled in the assembling in the factory. Imagine a departmentized service station where only certain makes or classes of cars are handled and are put through on a traveling chain, disassembled and reassembled with every worn part renewed, no time wasted on patching up material that can be cheaper replaced with new. Is it hard to conceive that there can issue from such a station a car fully as good as new, and in some respects better, renewed at an expense of not over one-third what it would cost to do it in the average dealer's repair shop?

The time is coming when most of the small dealers at least will do nothing but minor adjustments, and whenever they have anything to be materially operated upon, will remove it from the car (and by the way, the parts will be designed for ready removal of units), and send it to the central service station, which will overhaul it and return it to the dealer, who will replace it in the chassis.

Especially in the truck field it will probably become the order of the day to immediately replace the defective unit with a repaired one, so that there is no material time lost by the owner, and the old or defective unit will be sent to the service station and repaired, and in due course take its place again in the stock of the dealer, ready for the next replacement.

Longer Life Demanded Today

Too much in the past has it been the habit to throw away a car before its useful life was really exhausted. Obsolescence had more to do with the scrapping of automobiles than wearing out. Now that the designs have become more or less standard, the public is not going to indulge in this ruthless waste; it is going to require a longer useful life out of properly maintained vehicles, but it is going to insist on reasonable maintenance expense. It is not going to tolerate charges for repairs that exceed the resale value of service, however, until the engineer applies himself to the problem with as great sincerity as he already has to the design and production phases.

Truly the surface has only as yet been scratched in the possibilities for the engineer in the maintenance field.

National Motors to be Provided With Additional Working Capital

A bankers' syndicate, composed of Moore, Leonard & Lynch, of New York and Pittsburgh, Wm. H. Colvin & Co., of Chicago, and Stroud & Co., Inc., of Philadelphia and New York, are offering a new issue of $3,000,000 National Motors Corporation first mortgage 7½ per cent sinking fund ten-year convertible gold bonds, Series "A," due July 1, 1932.

National Motors Corp. was incorporated as Associated Motor Industries, Inc., under the laws of the State of Delaware in September, 1921. The name was changed to National Motors Corp. just before the automobile shows this year to be in conformity with the name of the National automobile which with Traffic motor trucks is the principal product of the corporation.

The bonds will be secured by a closed first mortgage lien upon the property of the National Motors Corp. This bond offering is for the purpose of providing the corporation with additional working capital and refunding certain existing fixed obligations. The corporation does not require capital for betterments, as it is amply provided with complete plant equipment for any normal extension of its business. The scheduled production of National automobiles and Traffic trucks for 1923 is 55,500.

The Modern Road and Its Relation to Business

Jersey's Recently Completed Highway Responsible for Big Developments Along Its Course. Cities at the Termini Also Benefit. Highway Constructional Details Valuable to the Truck Merchandiser Are Also Given

By JAMES W. COTTRELL

JUST what bearing has the development and construction of new roads on the truck dealer? Will it react o the advantage and benefit of the dealer to encourage, foster and talk road construction for the community of which he is a part, especially if the present highway is unsatisfactory and in poor condition? These questions may seem superfluous, yet they deserve repetition. Isn't it a fact that roads which have fallen in disrepute and that are tedious traveling, consuming both time and money, hamper the growth of communities that border its edges? Since time memorial cities and towns located on the main arteries of transportation, connecting links that provided the best and most direct means of intercommunication are those that made marked progress. The same conditions that existed yesterday exist today.

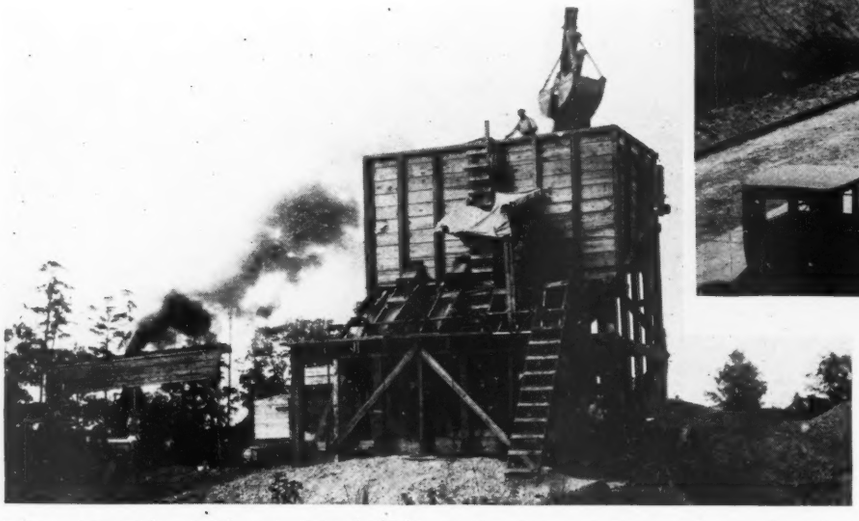
Mack and Excavator Breaking the Way in Haddon Heights, N. J.

A new modern road, connecting two important centers, encourages both truck and passenger transportation between those points. If the two points are separated by many miles, building development slowly but surely begins to make itself evident at various points of vantage along its course. Communities already established begin to thrive. Local businesses expand. Incident to the expansion of population and business is a proportionate demand for all commodities, least of which will not be additional truck equipment accessories, bodies, etc., for the groceries, farmers who are provided with a new outlet for their products. One could go on indefinitely citing the advantages that would accrue both to the community and truck dealer by continued road construction.

The point at issue is that it does help the dealer and it does so very directly, therefore, it is to his best interest to learn all there is to be learned about highways. Know how and who brings about the necessary appropriations for construction; how to create local interest in such projects; know generally what types of road beds are best under the conditions of the country and the anticipated traffic; how they are constructed and a good idea as to the cost, etc. In brief, know enough to talk intelligently about them.

Boards Leading to the Mixer Protect the Sub-Grade

Another important angle that should not be neglected is the angle that results



Unloading Plant of the John M. Kelly Co. With a Crew of Five Men, Ten Freight-Car Loads of Material Were Unloaded and Placed in Trucks in a Day

in actual business, actual sales. Get the complete facts concerning the ways and means and cost of building a road. Facts such as the cost of hauling a batch of aggregate from a centralized loading point to the point where actual construction is under way. With information such as this a truck salesman can talk intelligently to all contractor prospects, possibly render him a service by inviting his attention to a stunt some other contractor brought into play in another part of the country who was confronted with a similar problem. Armed with sales ammunition such as this, which is easily obtained from trade papers and a multitude of other sources they cannot help but reap in quite a number of sales. It all simmers down to one important requirement: Know all there is to be known about highways.

A very interesting piece of highway work recently completed and which is already almost overburdened at certain periods of the year with heavy traffic is the well-known New Jersey State highway. This highway stretches clear across New Jersey, connecting Philadelphia with Atlantic City in an almost direct line. The time and money spent on this road was indeed well spent as is already indicated by increased transportation and rapid community development along its route.

A stretch of fourteen miles with a varying width of twenty-nine and forty feet was the last connecting link completed last summer. The contract required the job to be finished in six months. The dispatch with which the job was completed is largely attributable to the proper use of trucks.

Concreting the White Horse Pike

The White Horse Pike, which includes the 14-mile stretch just finished, is a part of the New Jersey State highway system. The Highway Commission established a program of improving certain sections of road each year as the funds became available. The 14-mile section is all within the limits of Camden County and under the jurisdiction of the Board of Freeholders, the governing body of the county. The board, in order to expedite the work on this stretch, had made arrangements to have the work done at once. The county was to pay temporarily, later to be reimbursed by the Highway Commission when the appropriation for this road became available.

Bids were asked for by the board and the contracts were let to two Camden contractors.

Excavating was started by both contractors on April 24, 1922, and the pike was opened on November 4th of the same year. Owing to the very heavy traffic on this road the provision of detours presented quite a problem and two routes were laid out from Berlin and through traffic was diverted on these as one-way routes, traffic toward Philadelphia going via Haddonfield and toward Atlantic City via Mt. Ephraim Pike.

To the Kelly Co., one of the contractors, was awarded contracts for two sections of 3.97 and 5.3 miles. For convenience in operating this total of a little over nine miles was divided by the company into two sections of 4½ miles each. The question of transporting the immense quantities of sand, stone and cement required was carefully considered. Transporting conditions were such that the conventional method of material haulage was impractical. Over half of the nine miles consisted of a green sand soil or "marl," which not only afforded poor traction, but was practically impassable during wet weather. This factor finally resulted in the decision to use an industrial railway on this particular section and trucks on the other. Later experience proved that the choice had been a wise one.

Five and a Half Ton Mack on the White Horse Pike Job

Trucks, however, were used for excavating over the entire route. Part of the truck equipment employed by the Kelly firm was hired in order to expedite the work.

Unloading Plant Saves Time

A central loading point was chosen for carrying materials from railway to road. The dead haul to the road was only 1500 feet. Much thought and ingenuity was also given to the design and layout of the loading plant. It was a four-chute affair. The chutes located at the base of the storage bin discharged directly into hoppers, one hopper containing just enough material to load one truck.

The manner of discharging the hoppers involved but little time and effort. The V-shaped bottom of the hopper was held in place by two chains and a weighted lever. A kick on the end of the lever would discharge a batch into the truck body, after which the weighted lever automatically brought the bottom back into place. Time required for loading a truck was less than two minutes. This arrangement saved much time and labor. Five men handled the entire loading plant and loaded ten freight cars of material a day into the trucks.

Mr. Buie, the designer of the loader and of the John M. Kelly Construction Co., when asked for his opinion concerning the use of trucks for highway work, said: "Every job is an individual problem. Even on this job we used trucks in one place and industrial railway in another because of local conditions."

"What about horses, did you consider doing any of the work with horses?" was the next question asked.

"No, not at all. We have not used horses on road work for several years and we sold the last horse we owned today."

The M & C Contracting Co., of Haddon Heights, N. J., furnished the additional trucks employed by the Kelly Co. Mr. H. Mancill, of this firm and formerly a member of the sales department of a Philadelphia truck concern, gave many interesting facts and figures about the work. That he possessed one of the necessary attributes of a real salesman—that of being "sold" on his own goods—is shown by the fact that he is now, as a contractor, using the make of truck he formerly recommended to others.

Mr. Mancill keeps very accurate and careful records of the work of each truck. The gas and oil used is recorded every day. The mileage of tires is recorded with remarks of any unusual conditions tending to cause shorter tire life.

He said, in part:

Trucks Were Kept in Continuous Operation

"Constant supervision is absolutely necessary for successful truck operation in contracting work. I was constantly on the job checking upon every minute of operation, chasing around from one place to another to see that the trucks were on the job. I made one man responsible for checking the air pressure in the tires. He reported the pressure he found in each tire every Wednesday and every Saturday and also noted the pressure to which he pumped them again. As a result of this we did not have one tire bruised nor one rim cut on the whole job, despite the fact that we totaled 156 miles per day with the trucks."

Eight trucks were used for exacavating and thirteen for hauling the materials for concrete. The capacity of two of the latter group was four batches, three, one batch and the balance two batches. In addition to these two, extra trucks were

put in service for general utility work, hauling pipe and steel and cement. Part of the pipe used was hauled by truck direct from factory in Florence, N. J., to job.

Cost records on the job kept by Mr. Mancill show that the gasoline mileage averaged from 3¾ to 5.2 miles per gallon. Oil consumption averaged from 172 to 598 miles on a gallon. Tires averaged from 5464 and 5688 to 6468 miles. Front tires showed no signs of being shattered, although the mileage went over 10,000 miles. Several times, however, were cut by sharp objects on the road and gave a consequent lower mileage, but this did not appreciably affect the average.

W. Penn Corson, the contractor, awarded the upper end of the highway, received all the materials for construction by barge wharfing at a pier on the Delaware River. Material from the barges was hoisted into an overhead storage bin and discharged into the trucks through conventional chutes and hoppers. Six 5½-ton Macks and 20 one-ton Fords were used by this contractor. The larger trucks were used for excavating and for utility hauling. The Fords were used mostly for hauling the batches of sand and stone for the mixers.

This contractor maintained his own service station. Quite a bit of night work was necessary to keep the trucks on the job, but the quick service available enabled him to keep up his daily concreting schedule.

Intelligent Labor Important

This contractor was sorely tried by the labor problem. There was a large labor turnover among the truck drivers. Only one driver on the twenty trucks used worked through the whole job. The difficulty of getting the right drivers was a problem of no small importance, because the proper maintenance of the trucks depended to a large extent on the care shown by the drivers. For example, transmission bands lasted some drivers a week or a little less, others two weeks.

Cost of repairs on the Fords on this job was less than was estimated in advance and the cost of gasoline and oil was larger than the estimate. The trucks were bought from dealers after the contractor had decided on the use of trucks as a general proposition and on the particular make of truck to be used.

An unusual feature of the hauling done by W. Penn Corson was the fact that all of the "dead haul" of one mile was right through the business section of the city of Camden. The concrete work started at the city limits and extended from this point toward Atlantic City. The fact that several carloads of materials were hauled every day right through busy city streets shows the adaptability of the modern truck and shows again that every contracting job has its own peculiar conditions which must be met.

Contractors use a lot of trucks and they will continue to buy trucks. In this case two contractors with a big job on hand and a time limit of one summer season to put it through used trucks after careful investigation and consideration. In fact, there can be no doubt that these contractors have studied the problem as much if not more than any dealer interested in selling them trucks did.

Selling motor transportation to contractors cannot be done easily or without preparation. Advertising by the manufacturer, the service given by the dealer, the way trucks stand up on other jobs all influence the final decision about the purchase of trucks.

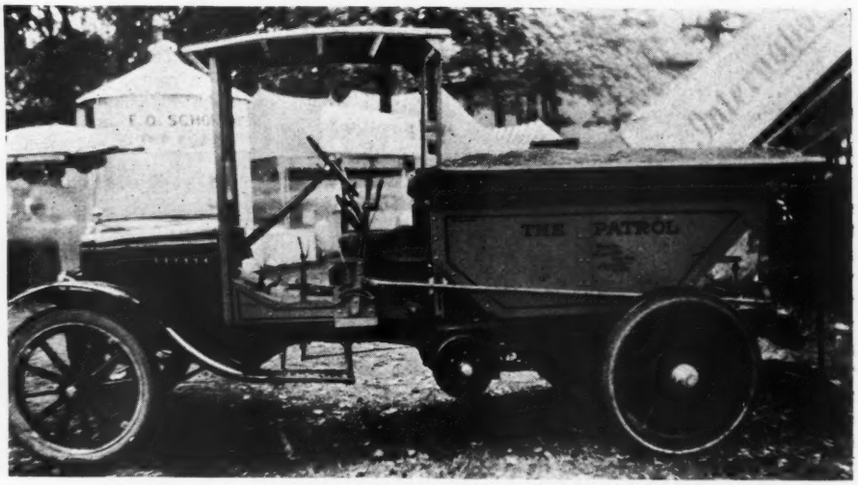
And there is quite a difference between letting a contractor (or any other prospect) **buy** trucks and going out and **selling** trucks to him.

A New Road Maintenance Truck Automatically Spreads Gravel

AN Ohio manufacturer has recently placed an interesting road maintenance truck on the market. The truck transports and automatically spreads gravel or other repair material without the need of hand shoveling or spreading.

The truck holds three tons of gravel or any road repair material. It is constructed with a long, narrow sliding gate extending entirely across the lower extremity of the front slope of the body. The gate can be opened one, two or three inches or up to six inches, forming a long slot through which the material flows the full width of the body on the roadway to any desired depth. An adjustable scraper attached to the rear axle and also controlled from the driver's seat, aids in spreading the material and levels it over chuck holes and ruts. The sliding gate is readily opened or closed and the driver has absolute control of the amount of material to be spread. One side can be opened at a time so that holes on either side of the road may be filled without spreading material over the surface where none is required.

The machine travels at the rate of 12 to 15 m.p.h. and it is claimed that it equals the amount of hauling ordinarily requiring six teams and wagons. This truck is manufactured by the Greenville Gravel Co., Greenville, O.



This Truck, With Its Three-Ton Capacity, Automatically Spreads Without the Need of Hand Shoveling or Spreading

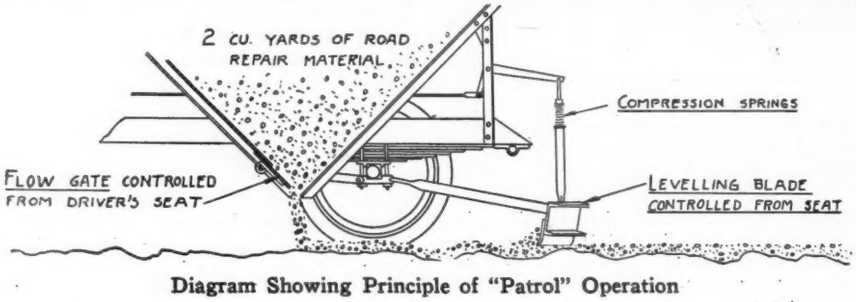

2 CU. YARDS OF ROAD REPAIR MATERIAL
COMPRESSION SPRINGS
FLOW GATE CONTROLLED FROM DRIVER'S SEAT
LEVELLING BLADE CONTROLLED FROM SEAT

Diagram Showing Principle of "Patrol" Operation

Fire Will Not Stop Spring Company's Production

In spite of the recent fire destroying the Kalamazoo forging plant of the C. G. Spring Co., orders will be filled by the company as heretofore, the bulk of the work having been distributed through the Detroit, Cleveland and Chelsea plants. The plant in Detroit, located at 2660 E. Grand Blvd., is to be enlarged.

Are You Taking Advantage of Your Window Space?

Some Dealers Are Fortunate in Having Good Window Space But They Don't Derive Any Profit From It. Here Are a Few Suggestions That Will Create Attention

By FRANK H. WILLIAMS

PEOPLE are always interested when they see maps in show windows or in newspaper advertisements. So it would be a good idea for the commercial car dealer to have an outline map of his state prepared, to show this in his window, and to have upon this map in red a line showing the approximate distance traveled during a single week by all of the trucks he has sold. If he feels that the state map isn't big enough to demonstrate this distance properly, he could use a map of the entire United States. The same sort of map could be used by the dealer in a newspaper advertisement. With the map the dealer could use copy emphasizing the fact that the trucks he sells are covering a tremendous mileage each week with perfect satisfaction to drivers and owners.

The use of this sort of a map in the dealer's window display and in his advertising would be sure to attract a lot of attention, and would be sure to help the dealer very considerably in selling more trucks.

* * *

What do the drivers themselves of the commercial cars sold by the dealer have to say about the performance of the machines? It would be a good stunt for the dealer to get the photos of ten or a dozen drivers of the trucks he has sold and to mount these photos on a large sheet of cardboard with a bit of typed copy under each photo, giving the name of the driver and quoting him as to the machine's performance, and to then put this cardboard in his show window. Photographs in the show window invariably get a lot of attention and as the drivers of the trucks are really the ones who can best tell about what the truck is doing, this sort of a window display would be sure to help sell machines.

* * *

What percentage of the dealer's business comes from the city in which he is located? What percentage comes from the county outside of the city? And what percentage comes from the rest of the territory handled by the dealer?

It would be an interesting thing for the dealer to have a map prepared showing his entire territory, and to indicate on this map just what percentage of his business is secured from the various portions of the territory. This could be done by coloring the various portions differently and by then stating under the map that each color represented a definite proportion of the dealer's business. For instance, the city in which the dealer is located might be painted red and it could be stated that the red section of the map gave the dealer sixty per cent of his total business. The county outside the city might be colored green and it could be stated that the green section gave him ten per cent of his business, and the remainder of the map might be colored blue, and it could be stated that the blue part of the map gave the dealer thirty per cent of his business.

This map could then be placed in the show window with copy telling all about it and with further sales copy reading about like this:

THE SAME SUPERIOR SERVICE ALL THROUGH THE TERRITORY

"No matter where in this territory the purchasers of our trucks are located, they receive the same superior service that local owners receive. That's why we get such a big percentage of our business from out of town.

"Get familiar with these superior trucks and with our superior service.

"Come in and get acquainted with us NOW."

This would be an unusual slant on the commercial car business and would give the public an insight into the dealer's business, which is something the public always enjoys getting, and all this would, therefore, help the dealer greatly in making more sales.

* * *

A very interesting window display idea would be to get a competent sign painter to paint upon the windows themselves, some reproductions of the most popular comic characters appearing in the "strips" in the local papers each day—these reproductions showing the characters driving the trucks handled by the dealer and commenting on the ease of operating the trucks, their power, capacity, etc.

The newspapers would, of course, be glad of the publicity given to their "strips" by this stunt and so could easily be induced to run photos of the windows on which the reproductions appeared. With such photos the papers would, of course, run some copy commenting on the stunt. This would give the dealer some worth while publicity which would help things along.

* * *

Kodak pictures of the buyers of trucks, seated at the wheels of the machines or standing beside them, would be an attractive addition to any commercial dealer's window display. Such photos could be taken with any ordinary camera. If they were used in the show window there should be typed captions attached to each picture telling all about it and giving the name and address of the owner, the nature of his business and comments made by him as to the reason why he bought that particular truck, and comments about the performance given by the truck.

* * *

An attractive window display could be arranged by the commercial car dealer by clipping out the advertisements run by the manufacturer of the truck he is handling in the trade papers and in the national mediums, if such mediums are used, and by mounting these attractively and putting them in the show window. An array of these ads put out in this form would be impressive and would be splendidly effective in hammering home to the public passing the window, the fact that the trucks carried by the dealer are the possessors of all the notable excellencies noted in the advertisements. This array of trade paper ads, too, would give the readers of the ads a rather different slant on the trucks, as it would show them the points which the manufacturer emphasizes in pushing the trucks with the dealers.

* * *

Here are some points for the commercial car dealer to play up in his advertising, and by emphasizing these points he would be doing something which would attract attention and which would boost sales:

The comparatively small amount of work being done by his service department. If the service department isn't very busy it indicates that the trucks handled by the dealer are giving the most satisfactory sort of service and aren't needing many repairs. And the dealer could hammer hard on this fact in his copy.

Number of owners of trucks sold by the dealer who have made repeated purchases from him. This could be played up as showing how satisfied the owners are with their purchases and how satisfied they are with the dealer's service. The names of the owners who have repurchased from the dealer could be given in connection with this advertising.

Testimonials from owners of the trucks. There's nothing quite so effective in helping sales as actual testimonials from satisfied owners. The dealer could easily secure plenty of such testimonials, and if he played them up from time to time in his advertising it would be a decided help to him in getting more business.

* * *

Use the window display and advertising suggestions contained in this article. The dealer has a splendid chance for not only helping his sales by the use of novel and interesting window displays and advertising, but he will find that if he uses such displays and such advertising it will enhance his prestige and reputation for being a live wire merchant. And prestige and reputation of the right sort are tremendously effective in the commercial car business in making more sales.

Use these ideas and do so NOW.

Industry Watching Balloon Tire Experiments

Some experimental work with automobile tires so large and thin that they have been described as "balloon tires" is being done by the United States Tire Co. The results of these experiments seem to indicate important changes in the future development of pneumatic tires.

In the experiments now being carried on by the United States Tire Co. cord tires large in cross section and having very thin carcasses have been substituted for the present conventional sizes with a view to providing greater cushioning for passenger cars.

These large, thin tires, under equal load conditions, can be operated with much lower inflation pressures than the smaller ones and thereby increase the ease of riding to a degree heretofore believed impossible. For example, 34 x 7 four-ply cord tires have been tested on a car normally equipped with 33 x 5 eight-ply cords. At an inflation pressure of 20 lb. per sq. in. these "balloon" tires will roll over a two by four lying on the road without any appreciable jolt and do it at low speeds.

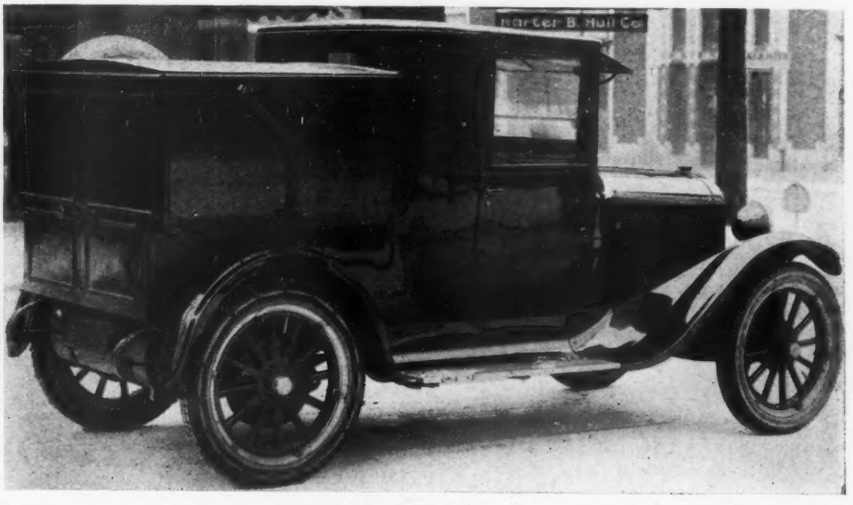
The 33 x 5 tires will, on the other hand, push this obstruction along the road surface without rolling over it unless the car is traveling very fast and then a severe jolt will be experienced.

The substitution of these super tires for those of conventional sizes is accomplished without effect on the driving characteristics of the car or on its road clearance. Their increased sectional dimensions are obtained by using a smaller rim diameter, 20 in. instead of the present popular 23 in., so that the outside diameter is about the same. The 30 x 5, in this thin carcass type, replaces the 31 x 4; the 32 x 6 replaces the 32 x 4½ and the 34 x 7 the 33 x 5. These tires should not be confused with the new line of pneumatic truck tires in these same 20 in. rim diameter sizes. They are comparable in outside diameter and sectional width, but the truck tires, 5 in., 6 in. and 7 in. carry from 8 to 12-plies of cord and operate at inflation pressure up to 100 lb. per sq. in. The super tires for passenger cars are not appreciably heavier than the present size tires.

In its statement the United States Tire Co. makes it clear that the announcement is made only as a matter of interest and that much work has yet to be done before super tires will be available to the public.

Acme Body Works., Appleton, Wis., Builds All Types of Bodies to Specification

This particular job, built for the Manitowoc Street Railroad Co., is one of its productions. It is of the latest type and construction, with full leather upholstering, colored window lights above main windows, dome lights and electric push buttons fully installed



A Mobile Sample Case Car for Traveling Man

These pictures show two views of a special body designed to carry a traveling man's sample cases, and fitted to the rear deck of the standard business coupe, built by Dodge Brothers. The body has eighteen compartments for carrying sample cases, all accessible when the two rear swinging doors are opened. It is bolted securely to the rear deck, and a tire rack is fitted to each side of the special body. It is easily removable, and the standard rear deck may then be put in place with little effort. The original body of the coupe is not altered in any way. This job was designed by Harter B. Hull, Dodge Brothers distributor, at Waterloo, Iowa, and shows how a sale may be made to a special customer where the dealer uses his ingenuity in devising the kind of body that fits the customer's particular needs. E. G. Anderson, representing the International Shoe Co., of St. Louis, in the Waterloo territory, is the salesman for whom the job was designed and built. Mr. Anderson finds it a wonderful help to him in covering his territory.

The Truck Trailer as a Dealer Sales Opportunity

By H. C. FRUEHAUF, Vice President Fruehauf Trailer Company

THE job of selling, like that of manufacturing, is governed by certain definite promises of public demand without which no dealer feels justified in investing his time and money. Unless there is a market or the possibility of cultivating one, the average motor truck dealer, like any other good merchant, holds fast to a conservative course. Especially has this been true of the last three or four years. General business conditions have been none too good and motor truck sales have suffered somewhat.

By the same token, trailer sales have exhibited a sympathetic weakness. Today, however, if recent sales figures indicate anything, trailer business as well as truck business is returning in excellent volume, much to the ultimate profit of every progressive dealer.

The Equipment Operated by B. F. Stead Consists of a Five and a Half Ton Truck and Two Six-Ton, Four-Wheel Trailers

Where the Trailer Functions

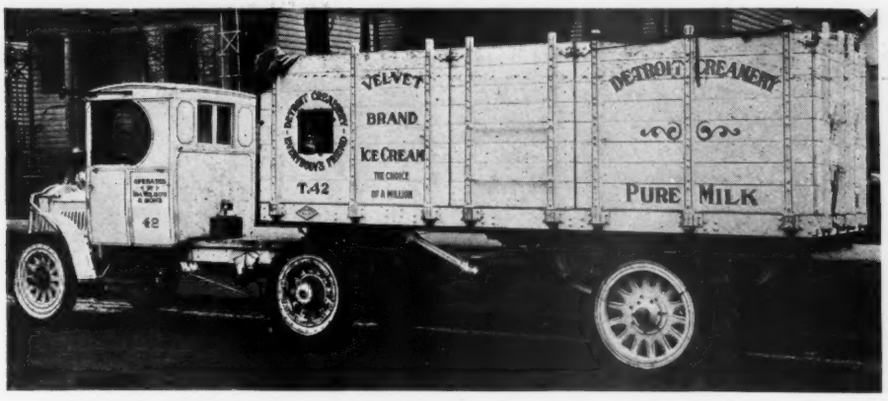
The trailer era is here. Truck operators all over the country are coming to realize the importance of the trailer in practically every field of truck operation. If the owner is a manufacturer, operating his own trucks, he turns to the trailer to cut his overhead and reduce his manufacturing costs. If he is running a general hauling business in competition with other operators he adopts the trailer to increase his hauling capacity, reduce his ton mile cost and disarm competition. Whatever his position or requirements, he rightfully expects through the use of the trailer undeniable advantages in the form of increased efficiency and lower costs. Generally speaking, every progressive motor truck operator is a splendid trailer prospect.

The modern truck trailer supplements the truck, enlarges its field of activity and makes possible still more profitable applications, in very much the same way that labor-saving machinery benefits the factory worker. A case in point is found in Monroe, Michigan, where the B. F. Stead Transportation Co. hauls more than 400 tons of paper products weekly. The work is being done at a cost comparable to that of the electric or steam road. Four units, each consisting of a 7½-ton truck and a four-wheel trailer of equal capacity, do all of the hauling. On the out-going trips to Detroit and Toledo are carried from 12 to 15 tons of finished products, while on the return trip is carried an equal amount of raw materials and supplies. Operating figures prove, in this case, at least, that the trailer is the determining factor and that without its help the truck would compare less favorably, if at all, with the other two modes of transportation.

H. C. Fruehauf
Vice-President of the Fruehauf Trailer Co.

Nor is this case exceptional. The same condition prevails with Ira Wilson & Son and the Detroit Creamery Co., who operate jointly a fleet of more than 50 motor trucks and at least half as many semi and four-wheel trailers. Not long ago these interests contemplated a haul from Owosso, Michigan, a distance of 100 miles. Between ten and fourteen tons of milk had to be moved every 24 hours.

The plan first called for two 5-ton trucks, but it soon became evident that such trucks would be too slow to handle the job economically. Then 2-ton pneumatics were tried. These insured the requisite speed, but unfortunately they could not be made to carry the necessary volume. A solution was finally reached through the use of 2-ton trucks, each with a trailer of 6 tons capacity. The installation has been operating almost a year now and has proved highly satisfactory in every respect.



Ira Wilson, Ice-Cream Distributor, Makes His Deliveries With a Two and a Half Ton Tractor-Truck and a Six-Ton Fruehauf Semi-Trailer

Opportunity for Similar Installations

These two cases are representative of innumerable others throughout the country. As hauls lengthen the field of the trailer expands. There are scores of opportunities in every dealer's territory, simply awaiting study and treatment at the hands of some one with a dependable

trailer line and a practical knowledge of truck and trailer operation.

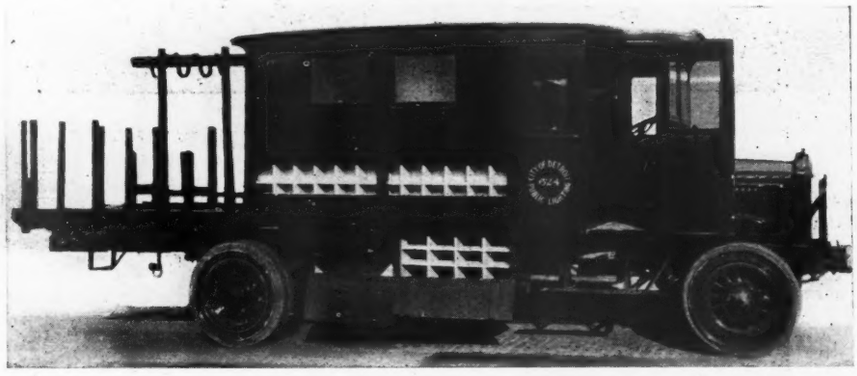
Obviously, certain territories offer bigger opportunities than others. In the oil fields and logging communities, for instance, materials are of such length as to demand the use of trailer equipment. For the most part, however, the trailer field is nation-wide. The energetic dealer will find plenty of logical prospects wherever he may be.

For a comparatively small investment many dealers are placing themselves in position to do a far greater volume of business than they could ever hope to do with trucks alone. In addition to this they are offering complete transportation service to their owners who would otherwise be compelled to buy their truck and trailer equipment from two different sources, with the consequent danger of getting items of equipment unsuited to each other. A case came to light recently in which an operator was given for tractor duty a short wheelbase truck. He was puzzled for several days to know why such a long wheelbase should be necessary—until he discovered one day that a mistake had been made. A special cut-down chassis was then substituted and the trouble was all over.

This operator, like thousands of others, has found the key to economical truck transportation, and will return to the market periodically to buy additional trailer equipment. Likewise, the dealer who provides for his needs has found the key to a profitable balance sheet. In the trailer he has obtained a money making sideline which requires relatively little extra time or effort. The cultivation of his prospects is practically the same with his trailer as it is with his truck and may be handled with equal facility by the same salesman.

The most important requirement of all in the development of trailer business is a clear understanding of operating principles, costs, etc. Much has been done to determine these factors in the truck field and now the same thing will have to be done in the trailer field. That dealer will succeed best who has the most comprehensive knowledge of his line and his territory—his prospect's business and its transportation needs.

Now is the time for the dealer to lay his plans. Industrial competition is becoming keener and keener all the time. Transportation costs are being dissected and studied in their smallest details, in order that the motor truck may be made to grow in usefulness and economy. All of these developments, not to mention a few less generous but nevertheless inescapable ones pertaining to the limitation of truck loads, augur big things for the trailer. The trailer, like the motor truck of ten or twelve years ago, is in its infancy. The dealer who gets the first and broadest vision of his market will be the first to cash in.



This Unusual Job, Designed by the Standard Motor Truck Company for the Municipal Lighting Plant of the City of Detroit, is Especially Noteworthy Because of Its Absolute Completeness in Every Detail

Dealers and salesmen soliciting business of traction, electric lighting and telephone companies will do well to make a note of this equipment as it is just such equipment as this that these companies require to properly and economically service their road property. This particular job, mounted on a 3½ to 5-ton Standard special length chassis, embodies drawers, lockers, tool boxes and seats specially arranged—all of which are designed for electrical equipment and maintenance service.

February Sales Figures for General Motors Released

Preliminary combined sales of American and Canadian passenger and commercial car divisions for the month of February totaled 55,000 cars and trucks; this compares with preceding months and further with corresponding months of a year ago as follows:

	No. of Cars and Trucks	
	1922	1921
December	47,406	15,381
	1923	1922
January	49,181	16,088
February	55,000	20,869

This preliminary figure includes Buick, Cadillac, Chevrolet, Oakland, Oldsmobile and G. M. C. truck.

Coming! The Electric Truck Show

THE annual ELECTRIC TRUCK SHOW, June 2nd to June 9th next, at New York City, evidences again the steadily growing popularity of this well-proven economic unit of transportation.

Where once the cost of electric current and its availability for this purpose seemed likely to restrict national distribution and sale of the "Electrics," now there are more than 7500 points in the United States, we are informed, where "charging" and "boosting" is as readily purchased as gasoline and at rates comparatively lower.

The COMMERCIAL CAR JOURNAL recognizing the progress which this branch of the industry is making, brings this Electric Truck Show to the attention of its readers for its "trade-news" value and for the inspiration and suggestion such news may develop toward solving traffic and transportation problems.

By extending the use of its splendid showroom, on the street floor of their building at Irving Place and 15th St., the New York Edison Company is host to the Electric Truck and Accessory Manufacturers during the annual convention of the National Electric Light Association in that city. Similarly, the publishers of COMMERCIAL CAR JOURNAL will broadcast this show to the Commercial Car trade. Exhibitors at the Electric Truck Show at New York are invited to exhibit also in the "Electric Truck Show Number" of the COMMERCIAL CAR JOURNAL, May 15, 1923.

Manufacturers who are producing parts, accessories or supplies designed for sale and use in the Electric Truck field, including the charging stations, garages and repair shops, are invited to send in descriptions and illustrations of their products, when as much space as possible will be given them commensurate with their news value and the amount of space available when the material is received.

"Looking Ahead" on Motor Highways

By MAJOR ELIHU CHURCH

Major Church is the Transportation Engineer of the Port of New York Authority. During the war he was a member of the General Staff of the United States Army, and while serving in France had much to do with the transportation problems of the A. E. F.

THE service rendered by a motor truck can be not better than the roads over which it runs nor the traffic conditions under which it operates.

The motor truck is now doing for our day and generation what the railroads did for our ancestors. Everyone realizes that without the railroads our country could never have developed and grown. Imagine the United States still in the stage coach age! In ten years time it will be just as impossible to picture us doing our hauling by horses. **The motor truck is here, and not a bit too soon.** It is here to stay to grow in numbers and to increase in importance as an absolutely necessary link in the more complex transportation problems of our day.

Have We Vision Today?

The people of sixty years ago lacked vision. They never realized how the railroad business was going to grow. They made no provision for expansion—especially as regards terminals. When the time came they could not meet the demand for increased service.

Today the motor bus and the motor truck are where the railroad was a generation ago. Do we realize how motor transport on highways and city streets is bound to grow? Are we blind also in our day? What can we do about it? What are we going to do about it?

The motor truck must be aided to become the efficient tool which modern traffic conditions absolutely demand. The problem affects everyone. All realize that the transportation cost that the ultimate consumer has to pay for his essentials is too great. We must lower the cost of food and necessities. **Our present hope to reduce this rests largely upon the motor truck and its efficient use.**

The first fact to be kept clearly in mind is that the cost of trucking **depends on time** not distance. IT COSTS ABOUT SIX CENTS A MINUTE TO KEEP A TRUCK ON THE STREETS. The three items that go to make this up are overhead, garage charges and chauffeur's wages. They go on whether the truck is standing still or moving. When moving there are further costs for gasoline, oil and tire wear. Hence it follows that when you ask a truckman to move some goods he is more concerned with the question **"How long will it take?"** rather than "What is the length of the haul?"

Speeding Up Truck Movements

Very little has been done to speed up truck movements. Our highway systems are seldom properly laid out and never properly operated. Our city streets are worse. As a result trucks are delayed. Often they only move a couple of hours during an eight-hour shift and as it is time that costs money trucking costs go up. One of the reasons so many horse trucks are still used is because it is less expensive to keep a five hundred dollar team standing idle rather than a five thousand dollar truck.

Major Elihu Church

As business grows congestion gets worse and worse. Delays become longer and more frequent. Costs of trucking go up. In some parts of certain cities a "dead line" has been drawn beyond which motor trucks are not allowed. In other places such a degree of saturation has been reached on the streets that motor trucks cannot profitably be operated on them and they are automatically eliminated. **In many cases trucks are hampered by foolish restrictions, in others they are throttled off the streets by congestion. This is foolish. It is wrong. It makes the costs of living higher for everyone. We must urge on the use of the motor truck and furnish it with facilities in the shape of roads and streets and sensible traffic regulations so it can best "do its bit."**

Only Carry Part Loads

Secondly trucks are frequently underloaded with two tons on a five-ton truck, it is only 40 per cent efficient and the costs for that load are more than double what they would have been had the truck been loaded to capacity. A little forethought and planning on the part of the shipper will often do wonders in this regard. Quite often, however, underloading occurs where one truck could take out a full load, and could deliver it easily in a day at its various destinations, provided it had half a chance to make speed between them, but the shipper knows that it will meet with so many traffic delays that it can't be done. Therefore, he is forced to send out part loads on several different trucks.

Again it often happens that there are unnecessary delays in loading and unloading. Congested and inadequate steamship piers and railroad freight stations account for a lot of it and tardiness, lack of system and neglect at warehouses, factories and stores for still more. Still as the clock ticks this means about six cents a minute added to the cost.

Finally there is the matter of the extra length of haul often made necessary by reason of improperly located highways and the frequent detours occasioned by repair work—or the lack of it.

Thus we find that where trucking costs are high it is due to low speed of operation, underloading, unnecessary delays in loading and unloading and the travel of much unnecessary distance.

Therefore we may take as an ideal for truck operation the slogan full speed, full load, full time and the shortest distance.

In order to obtain this happy state of affairs one of the first matters to be given attention are

(*Continued on page 66*)

Major Church is chiefly identified with the plans of the National Motor Truck Highways Association, 50 Madison Ave., New York City. His plans for construction and operation of units of motor truck trunk line highways, and for the development of shallow water frontage, to facilitate and cheapen cost of distribution by increased use of motor trucks, are to be promoted by the National Motor Truck Highways Association. This association is now being organized on a country-wide basis under the direction of Edward B. Lyman, executive secretary.

We'll put our time against yours and positively prove that the FEDERAL Modern Truck Line has more money making possibilities for you than any other truck made or your visit to Detroit won't cost you a cent

EDITORIALS

Time for a New One

THE other day we received a letter from a truck owner, located in a small Pennsylvania town, who inquired for information as to how he could adjust a model ——— carburetor. Upon looking up the vintage of this gas mixer we discovered that it was nearly thirteen years old. Our advice to him was to buy a new carburetor, because that model was designed to handle fuel which was of a different grade from that which is generally used today. We also advised him that the manufacturer of this particular model had some time ago brought out a model to replace the old one.

The interesting part of this incident, however, lies in the fact that this truck owner is operating a vehicle which, according to popular conception, is practically twice as old as any self-respecting motor truck ought to be. Which points to the conclusion that there are probably lots of trucks running around in some sections, that need the attention of some wide awake truck salesmen, who will see to it that they get decent burial in the local junk yard. There are many sales awaiting the energetic truck merchandiser who will cultivate the small town thoroughly.

Give the Trucks a Chance

FOR several months there has been a shortage of transportation facilities and it is predicted that the condition will become more pronounced, in fact, threatens to become the most acute shortage ever experienced. The inability of the railroads to meet the demands for the transportation of raw material into our factories and the outflow of finished products will naturally restrict the output and expansion of many industries. In turn the inability of the consumer to obtain deliveries will interfere with business expansion and will probably result in a further increase of prices.

This all goes to show that business is dependent upon transportation in one form or another. In order to help relieve the transportation situation the railroads are broadcasting information to shippers that freight cars should be loaded to capacity whenever possible. At the present time the average loading is only approximately half the capacity of the freight cars now in service. Record breaking orders have been placed by the railroads for additional equipment. The railroad building plants are booked to capacity for months to come. However, in all of the information that the railroads are putting forth, very little comment has been made by them which would reflect their sincerity in respect to turning the short haul business over to the motor truck. It is true, of course, that the railroads have purchased motor trucks in some instances to relieve terminal congestion, or for the purpose of giving them a try-out, and it is also true that some of the more broadminded railroad presidents have voiced their sentiments in the public press in favor of the motor truck, but there hasn't been enough open hearted encouragement given to the motor truck interests to indicate that the railroads are really serious about it. In most places where truck transportation developement shows any signs of serious competition, the attitude of the railroads against the truck is usually reflected in the number of bills in the legislatures inspired by the railroads. If the railroads are really anxious to help relieve the present transportation problem, we would suggest that they at least let the development and progress of motor truck transportation go on unhampered. The present transportation shortage offers planty of opportunity for co-operative effort.

Motor Truck Highways

ELSEWHERE in this issue the reader will find an article entitled "Looking Ahead on Motor Highways," written by Major Church, transportation engineer of the Port of New York Authority. In this article many arguments are advanced in favor of specially constructed highways and other means which will increase the efficiency of the motor truck and thus reduce the cost of transportation and the cost of living.

In some quarters the "Church Plan" will not be viewed with special favor. On the other hand, it is an extremely practical plan, and if carried out in connection with a few of our larger cities would soon prove itself worthy of adoption on a national basis. Traffic conditions in our large centers have become a serious problem, and the levying of additional taxes on the motor truck and passenger car owner will not remedy it. The plan which is now being promoted by Major Church has great possibilities and should be given hearty support by all interests concerned in the advancement of the automotive industry and the country's transportation problems.

News of the Trade in Brief

(For Additional News, Personal, Trade and Literature Items, See Pages 72 and 74)

Transportation is Theme of Chamber Meeting

Committee on Highway and Motor Transport is Making Preliminary Studies in Preparation for Annual Gathering

Definite progress toward the formulation of recommendations representative of American business thought for a national transportation policy was reported recently by the Chamber of Commerce of the United States in announcing that three of the five Special Committees assigned to make preliminary studies of the main elements of the problem were completed and began work in March.

The three committees already at work are those on highway and motor transport, railroad consolidations and co-ordination of rail and waterway service. The motor transport committee met in New York, March 19, with A. H. Swayne, vice-president of the General Motors Corp., as chairman.

The transportation conference is the outgrowth of suggestions made at a meeting of business men in New York, January 26, at the call of President Julius H. Barnes, of the National Chamber, for consideration of transportation problems. Secretary Hoover, of the Department of Commerce, attended unofficially. A resolution was adopted requesting Mr. Barnes and the National Chamber to take the initiative in bringing about "a comprehensive study of the whole question of national transportation, participated in by the railways, shipping interests, producers, the motor industry, waterway operators and the public and with co-operation of governmental representatives."

The novel plan of forming the subcommittees of the conference before the personnel of the general committee was worked out was adopted in order to expedite the work. The general committee will probably be named after the return of President Barnes, of the National Chamber, from the Rome meeting of the International Chamber of Commerce. Arrangements are in the hands of A. B. Barber, manager of the Department of Transportation and Communication of the National Chamber, who said recently that a progress report would be possible at the time of the eleventh annual meeting of the National Chamber in New York, May 7-10.

The committee as made public by the National Chamber show that the participation desired has been provided for. Those composing the committee on "Relation of Highways and Motor Transport to Other Transportation Agencies," in addition to Mr. Swayne as chairman, are W. J. L. Banham, traffic manager, Otis Elevator Co., N. Y.; L. W. Childress, president, Columbia Terminals Co., St. Louis; D. G. Fenner, engineer and manager Public Works Department, Mack Truck Co., New York; Gerret Fort, vice-president, Boston and Maine Railroad, Boston; Philip W. Gadsden, vice-president, United Gas Improvement Co., Philadelphia; W. H. Lyford, vice-president, Chicago and Eastern Illinois Railroad, Chicago; R. M. Matthiessen, president, the Motors Haulage Co., New York; John D. Miller, president, National Milk Producers' Federation, Utica, N. Y.; H. H. Raymond, president, Clyde Steamship Co., New York; Arthur Waterfall, vice-president, Dodge Automobile Co., Detroit, Mich.; Henry J. Waters, editor, Kansas City Star, formerly president Kansas State Agricultural College; R. C. Wright, general traffic manager, Pennsylvania R. R. Co.

Coming Events

SHOWS

Detroit, Mich., May 15 to 16, 1923—Spring meeting of the factory service managers of the National Automobile Chamber of Commerce, at Hotel Statler. H. L. Cobleigh, Secretary of Service, 366 Madison Ave., at 46th St., New York City.

Fresno, Cal., September 28 to October 5, 1923—Automobile show, auspices of Fresno Automobile Dealers' Assn. Ray W. Wakefield, Mgr.

Green Bay, Wis., Augurst 27 to 30, 1923—Annual automobile show, auspices of Green Bay Assn. of Commerce, Brown County Fair Grounds, W. F. Kermin, Mgr.

Little Rock, Ark., October 8 to 13, 1923—Annual automobile show, auspices of Little Rock Automobile Dealers Assn. A. W. Parke, Mgr.

Memphis, Tenn., September 23 to 30, 1923—Annual automobile show, Tri-State Fair Grounds Memphis Automobile Dealers' Assn. Thomas H. Smart, Mgr.

Red Bank, N. J., May 7 to 12, 1923—8th annual automobile show, auspices Monmouth County Automobile Dealers' Assn. Armory.

Sacramento, Cal., September 3 to 8, 1923—Annual automobile show, auspices of Motor Dealers' Assn. State Exposition Grounds. H. W. Leonard, Mgr.

CONVENTIONS

Dixville Notch, N. H., June 25 to 29, 1923—Spring Convention of Automotive Equipment Assn., at the Balsams.

Greenville, S. C., April 16 to 21, 1923—11th annual convention of the United States Good Road Association and the 6th annual convention of the Bankhead National Highway Assn.

New Orleans, La., April 25 to 27, 1923—Tenth National Foreign Trade Convention of the National Foreign Trade Council.

New York, N. Y., May 10, 1923—Annual meeting of the National Highway Traffic Association at the Automobile Club of America Rooms, Prof. Arthur H. Blanchard, President.

Twin Falls, Idaho, July 14-15, 1923—Annual meeting of the Idaho Automotive Trade Assn.

Society of Automotive Engineers

Cleveland, April 26 to 28, 1923—Automotive transportation meeting.

Cleveland, October 25 to 26, 1923—Production meeting.

Detroit, January, 1924—Annual meeting.

Spring Lake, N. J.—June 19 to 23, 1923, Summer meeting.

FOREIGN EVENTS

Goteburg, Sweden, May 8 to July 15, 1923—International automobile exhibition in connection with the Goteburg Jubilee Exposition.

Paris, France, October 4 to 10, 1923—Show at Grand Palais. Passenger cars, accessories. motorcycles and bicycles.

Seville, Spain, May, 1923—International Road Congress.

Gasoline Production Made New Record in January

Production 6.6 Per Cent Over the Previous Month's Output Which Was Also a Record Month

Production of gasoline in the United States in January amounted to 623,823,337 gallons and established a new high monthly record, according to Secretary of the Interior Work. The figures, which were compiled by the Bureau of Mines, show an increase of approximately 39,000,000 gallons, or 6.6 per cent over the previous record month's output, that for December, 1922.

Reports from 301 refineries operating during the month indicated that on February 1 the nation's stock of gasoline amounted to 1,002,857,273 gallons, the largest supply ever recorded. Stocks of gasoline were increased during January by 119,000,000 gallons. Gasoline stocks on February 1 were nearly 300,000,000 gallons in excess of stocks on the corresponding date in 1922.

The indicated domestic consumption of gasoline in January was 443,128,456 gallons, excluding imports for which figures are not yet available.

Refineries operating in January had a total daily indicated capacity of 1,927,667 barrels. Based on the crude oil run to stills, these plants operated at 81 per cent of their capacity.

Exports of gasoline in January, including shipments to insular possessions, amounted to 61,630,469 gallons.

Domestic production of kerosene in January amounted to 212,447,902 gallons. Consumption of kerosene was 123,214,097 gallons; exports were 94,847,333 gallons. Stocks on hand February 1 were 275,436,804 gallons, a decrease of more than 5,000,000 gallons during the month.

Production of gas and fuel oils in January is given as 989,376,102 gallons. Consumption of these oils amounted to 931,829,391 gallons. Exports were 97,199,839 gallons. Stocks on hand February 1 were 1,265,074,722 gallons, a decrease for the month of 39,000,000 gallons.

The output of lubricants in January amounted to 87,077,868 gal. Consumption of lubricating oils is reported at 49,061,520. Exports were 33,061,486 gallons. Stocks on February 1 amounted to 240,689,649 gallons, a decrease of 5,000,000 gallons during the month.

Import figures for gasoline, kerosene, gas and fuel oils and lubricants are not yet available.

Canadian registration of motor vehicles is nearly at the half million mark, as it reached 499,022 at the end of 1922, which was a 9 per cent increase over the preceding year.

Goodrich Rubber Announces Several New Executive Appointments

Executive promotions made necessary by the rapid increase of business are announced by W. O. Rutherford, vice-president of the B. F. Goodrich Rubber Co.

William A. Johnson, who has been manager of Goodrich automobile tire sales for the past several years, becomes manager of merchandising of the tire division. Mr. Johnson has long been identified with the tire industry and in his new position will be enabled to give closer study to the problems of the trade and to encourage the science of tire merchandising in its broadest sense.

H. M. Bacon, whose long connection with the industry has earned for him an enviable reputation, has been appointed manager of branch operations, with general supervision over the Goodrich chain of branches numbering 110. Mr. Bacon will also have supervision over the service division. He will be supported by P. H. Sears as manager of the branch administration department. Mr. Bacon advances from the position of tire sales manager for western districts.

A. G. Partridge, another veteran in the tire industry in the matter of experience and who for some time has been the Goodrich tire sales manager for eastern districts, succeeds Mr. Johnson in the direct handling of sales of automobile tires to dealers.

T. A. Aspell continues in charge of all truck tire sales, but the constantly increasing business of that department has brought about such an expansion of his duties that he will relinquish the management of the service department in order to be able to devote his time and thought entirely to the sales end.

L. A. McQueen, who has made a brilliant record as manager of sales promotion and whose direct work with the retail tire dealers has been unusually successful, has been promoted to the position of advertising manager, succeeding E. D. Gibbs, who has resigned to engage in business for himself. Mr. McQueen will continue to supervise the sales promotional work with the dealers and will correlate it with the varied advertising activities of the Goodrich organization.

Short Lines Use Motor Transport for Economy

American Short Line Railroad Association has found that many lines operate motor cars at a cost of from 10 to 25 cents a mile, including all charges, as compared with a cost of from 65 cents to $1 to the train mile in the operation of steam trains, according to a dispatch in the Wall Street Journal. The extremely low cost of 19 cents a mile covers the operation of smaller cars seating 20 to 25 passengers and served by one man. Larger cars, seating 45 to 55 passengers and carrying baggage are operated by two men and the average cost, including all charges, is 25 cents a mile.

U. S. Truck Continues Its Good Business

The consolidated balance sheet of the United States Motor Truck Co., and subsidiary, on December 31, 1922, shows a total earned surplus of $288,890.30, $72,101.20 of which is for the current year. Current Assets of the company total $1,310,954.48, as against current liabilities of $127,480.28.

In the letter to stockholders accompanying the sheet, R. C. Stewart, president of the company says: It is our policy to continue to build and market the world's most dependable and complete line of trucks. The U. S. name has for 14 years been universally accepted not only as a mark of quality but as a pledge from this organization that the high degree of perfection which insures the most service for the money, will be maintained. In fact that both dealers and users who know truck values, acknowledge the superior service-giving quality of U. S. trucks means much for the future interests of this company and its stockholders."

The American Electric Railway convention and exhibit will be held at Atlantic City, N. J., on October 7 to 11, 1923, on the Million Dollar Pier.

Trailer Makers Meet in Detroit

A special meeting of the Trailer Manufacturers was held March 20 at the Detroit Athletic Club largely to consider matters pertaining to legislation which are coming up in practically every State of the country at this time. J. B. Mansfield, of the Detroit Trailer Co., was appointed chairman of the legislative committee and delivered an interesting talk on this subject.

Most of the manufacturers reported good business and the outlook for 1923 indicates a satisfactory year in volume of sales for all.

The same officers were re-elected, namely: J. H. Fertig, president, Arcadia Trailer Co., Newark, N. Y.; H. C. Fruehauf, vice-president, Fruehauf Trailer Co., Detroit; H. M. Wood, secretary-treasurer, Trailmobile Co., Cincinnati. These officers with the following were elected on the executive committee: S. A. Griggs, Detroit Trailer Co., Detroit; S. B. Winn, Lapeer Trailer Co., Lapeer, Mich.; Max Herrmann, Warner Trailer Co., Beloit, Wis.; Martin Crow, Troy Trailer Co., Troy, O.

Coghlan Leaves Trexler Company of America

Walter P. Coghlan, who has been connected with the Trexler Company of America, manufacturers of the Trex Gear Shift Lock and other automotive specialties, resigned as vice-president and director of sales to take effect April 1.

Mr. Coghlan has not announced what his new connection will be.

Department of Agriculture Releases 1922 Registration Figures

A comparison of the 1922 truck registration figures with those for the preceding year show, according to the Bureau of Public Roads of the United States Department of Agriculture, an increase of 30 per cent, indicating that this phase of highway transport is undergoing rapid development. The increase in truck registration is not confined to industrial sections. Such agricultural states as Virginia, Indiana and Florida show increases of 33 per cent, 30 per cent and 29 per cent, respectively, which seems to indicate that farmers are changing their methods of hauling as a result of good road improvement.

In 1922 motor vehicle registrations more than maintained the rate of rapid increase which has caused the total registration to grow from 3,500,000 in 1916 to 12,238,375 motor cars and trucks at the end of 1922, according to the Bureau of Public Roads of the United States Department of Agriculture. Last year the increase amounted to 1,775,080 registrations, as compared with an average yearly rate of approximately 1,390,000 for the preceding five years.

The table issued by the bureau gives registrations by states which total as follows for the whole United States:

Private passenger cars	10,890,112
Taxicabs, buses and cars for hire	69,459
Motor trucks and commercial cars	1,278,804
Trailers	29,328
Motorcycles	182,714

The total gross registration revenue amounted to $152,047,823, of which $117,093,116 was applied to road work under the supervision of the State Highway Departments. Eighteen states taxed gasoline, deriving a revenue of $11,923,442, not all of the states reporting for a full 12-month period. Of this amount $6,474,178 was spent under the supervision of the State Highway Departments.

Timken Balance Sheet Shows Good 1922 Business

Although Timken bearings are familiar to everyone in the automotive industry, the full significance of this company's business can only be appreciated by a glance at the annual balance sheet.

For the year of 1922, the Timken Bearing Co., showed a manufacturing profit of $10,925,159 with a selling, general and administrative expense of $1,320,692, thus leaving an operating profit of $9,604,466. The net profits of the company after deducting taxes was $8,824,029.

Cash and securities show $7,002,544, which, together with accounts receivable and inventories bring the total current assets up to $11,991,848. Total current liabilities are $950,218.

President Timken states that the volume of business in 1922 was materially in excess of the previous year and from present indications the 1923 business will exceed that of 1922.

Service Trucks Made by New Company

Service Motors, Inc., Organized in Delaware to Take Over the Business of the Service Motor Truck Co., of Wabash, Ind.

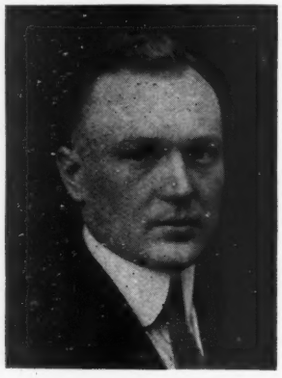
As a result of the financing program that has been worked out during the last few months to give the company additional capital necessary to handle the greatly increased volume of business now on its books, both for motor trucks and railroad coaches, the organization of Service Motors, Inc., has recently been announced.

Service Motors, Inc., with assets of $1,025,000 takes over the business of the Service Motor Truck Co. The company is starting the year with a bigger volume of business on its books than has appeared at any time since the slump, in 1920. It will continue production of Service trucks, and Service gasoline driven railroad coaches. Service Motors, Inc., is on a sound financial basis, and has behind it the support of some of the strongest banks in the country.

In addition to financial support, the company is managed by men of long experience in the motor truck industry, practical men who understand sound merchandising and manufacture.

The officers are as follows: Paul Moore, president and general manager; C. W. Folds, vice-president; Charles Guernsey, vice-president and manager railroad division; G. L. Gillam, vice-president and sales manager truck division; E. L. Mock, secretary-treasurer.

Paul Moore has been with Service for over eight years. His experience began with advertising, and he has since been in charge of production, sales and for a long time was assistant to the general manager. For the last year or so he has been in active control of the organization. C. W. Folds is connected with Hathaway, Smith Folds Co., Chicago.



E. L. Mock

Charles Guernsey has been with Service since about 1912, first as chief engineer, and later as manager of the railroad division. Guernsey is a practical engineer, and has been with Service continuously except for a period when he was called to Washington and put in charge of designing work for the Motor Transport Corps.

G. L. Gillam has been with Service for a little less than two years. His previous experience for several years was with the International Harvester Co., Truck Division.

Mr. Gillam realizes and preaches that unless the dealer who handles and sells the line is in a position to make a profit, there will be no profits for the factory. He is building up a strong and loyal dealer body.

Service Motors, Inc., is starting business with a new capital available of from $300,000 to 500,000, assessed of $1,025,000

Paul Moore

capital stock of $600,000, a surplus of $275,000 and a reserve for contingencies of $150,000.

Production has been sold until the last of May, and an increase in the number of employes is being made, which will bring the number up to about 400. More men will be taken on to keep production as high as may be necessary to handle orders.

Service Motor Trucks have been built at Wabash since the first of April, 1911. The first trucks were of friction drive. Later the chain drive was used, but in 1914 all models were changed to worm drive. Worm drive is used today on all models of the full line, with the exception of the speed trucks.

The development of the railroad coach division is interesting. The first coach built by Service was a converted 1½-ton truck, equipped with flange wheels. It was put in service in 1914, by the Little River Railroad, in Tennessee. It is, incidentally, still in daily service. Later, some larger converted motor trucks were sold to the Winchester and Western Railroad, the first being a standard converted truck, while the second had a four-wheel pony truck in front.

It was found, however, that trucks of this nature did not meet adequately the needs of the railroads, and so the next development was a real motor coach, which had no points in common with the trucks. The Service coach of today is 42 ft. long and seats 46 passengers, in addition to having a 70 ft. compartment for baggage, mail and express.

The first of these was delivered about a year ago, and since that time the sales have amounted to three quarters of a million dollars. These coaches are being used by such representative roads as the New York Central, Seaboard Airline, Pennsylvania, Maine Central, Frisco, Canadian National, etc.

Gear Manufacturers to Meet at Cleveland

Educational Speeches, Election of Officers, Informal Banquet to Feature Big Gathering

The seventh annual meeting of the American Gear Manufacturers' Association will be held in Hotel Cleveland, Cleveland, O., Thursday, Friday and Saturday, April 19, 20 and 21.

Meetings of committees are called for Thursday morning, April 19, and the first general session of the meeting will convene at 1:45 p.m., with the president, F. W. Sinram, in the chair. Reports of committees and sub-committees will take up most of the afternoon session which will close with an address by E. C. Smith, chief metallurgist, The Central Steel Co., Massillon, O., whose subject is "What Does the Microscope Tell Us?"

At an informal dinner at 6:00 p.m., R. S. Holding, Jr., of Brown and Sharpe Manufacturing Co., Providence, R. I., will speak on "One Half Hour in the Far East."

At the second general session which will convene at 8:00 p.m.,Thursday, E. J. Lees, of the Lees-Bradner Co., Cleveland, O., will speak on "Grinding and Measuring Involute Gear Teeth."

On Friday morning at 10 o'clock, five members of the Executive Committee will be elected, four of these for a period of three years and one for a period of two years. At 12:05 p.m., Wilfred Lewis will discuss the "Gear Testing Machine." Friday afternoon will be given over to sightseeing with a meeting of the Executive Committee announced for 4:30 p.m.

An informal banquet for the representatives and guests will be held Friday evening. F. W. Sinram will be toastmaster, and the principal speakers of the evening will be the Very Rev. F. S. White, Dean of Trinity Episcopal Cathedral, Cleveland, whose subject as announced is "What Happened to the Shot, the Sound of Which Went Round the World?" and Col. L. P. Ayres, vice-president Cleveland Trust Co., Cleveland, who will speak on "How Long Will Prosperity Last?"

At 10:45 Saturday, K. L. Hermann, of the Studebaker Corp., will discuss "Tooth Forms of Automobile Gears After Cutting Hardening, and Grinding." The automotive group of members will meet at 11:25 to consider "Conditions in the Industry" under the leadership of A. W. Copland, of the Detroit Gear and Machine Co.

"Industrial Relations" will be the subject of Frank A. Scott, president, Warner & Swasey Co., Cleveland, at the luncheon scheduled for 12:15 p.m., Saturday.

The fifth and concluding session of the convention will be held at 2 p.m., at which time Owen A. Locke, O. C. Kiehne and A. F. Cooke, will speak.

At 4:30 p.m. the Industrial group of members will meet to consider "Conditions in the Industry," with George L. Markland, Jr., of the Philadelphia Gear Works presiding.

Series of Electric Truck Schools Planned

The Electric Truck School, under the auspices of the Electric Truck and Car Bureau of the Commercial Section, N. E. L. A., will open on May 15th, and continue until May 26th, in New York City. E. S. Mansfield, chairman of the school and the faculty, consisting of representatives of all the electric truck manufacturers and the leading manufacturers of accessories and parts, will lecture on the subjects connected with the manufacture and sale, operation and maintenance, of electric trucks. Some of the subjects to be covered are transportation, engineering, and salesmanship; chassis construction; battery manufacture and care; motors; controllers and accessories; garage equipment; tires; lubrication, operation, operation and economy of the electric truck. These lectures will be illustrated by lantern slides, models, demonstration tests, etc.

Invitations have been sent to Class A lighting company members located in the Eastern Standard Time Zone. It is expected that seventy-five to a hundred representatives of these companies will be sent to attend this school.

The same two weeks' school program will be carried out in Chicago, with the complete school course and with examinations, from June 19 to June 30. All Class A members in the Central and Mountain Time Zones will be invited to send representatives to the Chicago school.

The lectures were composed with great care by those most competent to deal with the subjects and have been put in permanent form for reference and copies made available for the students. The course as prepared will be carried out under the auspices of the educational Committee, N. E. L. A.

If these first two schools are successful as they promise to be, additional schools will be arranged for, in order to serve all of the central stations which may apply.

R. H. Salmons Leaves Selden Company

It has just been announced that R. H. Salmons has severed his connection with the Selden Truck Corp., having resigned as vice-president and director on November 1st.

Mr. Salmons has a wide acquaintance in automobile circles, and is one of the best-known men in the trade, having been a member of the old Association of Licensed Automobile Manufacturers, controlling the Selden patent, and one of the original members of the National Automobile Chamber of Commerce, in which association he has been active for many years as a member of the National Motor Truck Committee.

The control of the Selden Co. has recently passed into the hands of the Industrial Motors Corp., of New York City, and the change in ownership has afforded Mr. Salmons an opportunity to withdraw and devote his time and attention to other matters in which he has been largely interested for some time. He will maintain offices at 49 East Ave., Rochester, N. Y.

For the Pessimists

During March, 346,383 motor cars and motor trucks were manufactured. This is the largest month's production in the history of the business, as it exceeds by 57,000 the record of 289,011 made in June, 1922.

Reports of shipments made to the Directors' Meeting of the National Automobile Chamber of Commerce also showed that the production for the first three months of this year, reaching 867,628, is more than double the same period in 1922.

Demand for light trucks is reported good in most sections of the country. There is a favorable market for heavy trucks in Illinois, Indiana, Pennsylvania and parts of Ohio, as well as other points where there is great industrial activity.

Pierce-Arrow Sales Increase 228 Per Cent

Sales of Pierce-Arrow passenger cars and trucks to date this year are 228 per cent greater than the total sales during the corresponding period a year ago, according to an announcement made by the Pierce-Arrow Motor Car Co.

"The comeback in motor truck sales," Myron E. Forbes, president of the company, declared, "is due to the revived need for the more modern types of trucks. The increased commercial and industrial activity of recent months has resulted in greatly increased transportation activity, and wherever you find raw materials or finished products to be moved, you will find motor trucks.

"Even the railroads are turning to motor trucks to overcome terminal congestion. Instead of the usual system of sending out daily shuttle cars to each railroad it has been found more practical to have motor trucks transfer the freight from one depot to another. Not only does this tend to clear the rails but motor trucks can do this kind of short-haul work more promptly and at lower cost than is possible with shuttle trains."

Increased Use of Trucks in Rural Sections

Motor trucks are being increasingly used in the rural sections of the country. The survey of the United States just completed by the National Automobile Chamber of Commerce in collaboration with the local county agents has brought out the fact that there are 138,308 motor trucks on farms in the 1,218 counties which they surveyed. If the 40 per cent of the total counties which responded are typical the total number of motor trucks on farms for the entire country is 348,000.

Missouri reported 13,803 motor trucks; Pennsylvania, 12,631; and Iowa, 7,318.

Denby Truck Absorbed by New Corporation

Effective April 1, 1923, the Denby Motor Truck Corp., took over the business and plant of the Denby Motor Truck Co. Stockholders of the new corporation include Hon. Edwin Denby, Secretary of the Navy; J. Walter Drake, Chairman of the Board, Hupp Motor Corp.; William R. Kales, vice-president of Whitehead & Kales Iron Works, and president of Kales Stamping Co., and other prominent Detroit business men. They are all men of substantial means, and are strongly behind the new corporation. There will be no change in management or in policy.

The Denby Corp. will move to a new location about July 1st, at which time the lease expires on the present property. The exact location of the new factory will be announced shortly.

Commenting on the motor truck situation, the corporation says: "The truck business has shown wonderful improvement in the last 30 days, and orders are coming in to the factory in greater volume than at any time since the spring of 1920. There is bound to be a shortage of reliable trucks this spring, and we strongly suggest that you place your truck orders without delay, to protect any desired delivery at present prices. Steel and other materials are already higher in cost, and further advances are indicated."

The officers of the new organization are: A. S. Moore, president and general manager; Edwin Denby, vice-president; J. Walter Drake, vice-president; M. H. O'Brien, secretary; and E. R. Ailes, treasurer.

Traylor Stock on 8 Per Cent Basis

In addition to electing officers a quarterly dividend of two per cent on the preferred stock of the Traylor Engineering & Manufacturing Co., was declared by the stockholders at the annual meeting of that company recently.

The following officers were re-elected: Samuel W. Traylor, Sr., chairman of the board; W. J. Roberts, president; F. W. Hopkins, vice-president, and J. Mair, secretary. The board of directors beside the officers consists of H. L. Miller, R. Bernhard, Nelson Edwards, H. O. Peebles, B. C. Collier, L. P. Forster and W. G. MacFarland.

Commendable Work in Legislation Matters by Motor Truck Club

The Motor Truck Club of New Jersey took the lead opposing several bills introduced during the past session of the Legislature of New Jersey. All bills opposed by them failed.

Two bills were introduced in the Assembly imposing a tax of one cent per gallon on gasoline. One came up for passage and was defeated by a vote of 15 to 36; the other bill did not get any farther than the second reading.

In the Senate two bills were introduced: Senate No. 38, decreasing the maximum weight from 30,000 lb. to 26,000 lb. Senate No. 39, increasing the fees on trucks over 13,,000 lb.

These bills passed the Senate by one vote and after being reported out of Committee in the Assembly, died in the Legislative jam on the last night of the session.

These results were only obtained by hard, concerted effort on the part of the officers and members of the Motor Truck Club of New Jersey. The Legislative Committee worked along intelligent lines; a daily news service is subscribed to and a representative of the club is present at every session.

Inimical Bills Examined

A copy of each bill introduced is received at the Club office and those inimical to the best interest of the public and motor truck owners are carefully examined and every member informed. The names and addresses of his Senator and Representatives are sent to him with a request that he see or get in touch with them at once. The reasons for opposing the bills are sent to him together with a statement showing just how they will affect the truck owner in his particular county. In this way he is supplied with information which will enable him to present to his representative in an intelligent manner, the objections to the measure. This is followed up by a truck representative at the State House seeing each member of the Legislature and ascertaining whether he has been approached by one of the members from his county. If not, the member is called on the telephone and urged to get busy at once.

At the present time the Motor Truck Club of New Jersey consists of 1000 truck owners scattered throughout the state and the results obtained by this procedure are shown in the successful work of the Legislative Committee this year. It is rather surprising the lack of interest taken by the truck dealers. Most of the dealers are members of our organization and instead of being the first to aid us, it is extremely hard to get them "on the job."

Boosters' Club, N. E., No. 1 Elects New Officers

The Boosters' Club, N. E., No. 1, got away with a good start for 1923 when at the annual meeting held March 13 at Boston they re-elected those officers who have been very active workers during the past year. The ticket as presented by the nomination committee was accepted. Thomas F. Wilson, the first president of the organization, was again chosen; Dan G. Caywood, treasurer, was moved up to vice-president, a new office created; Charles M. S. Foster, secretary, was appointed to replace Caywood; G. S. Fabel is the new secretary. The new board of directors include the new officers and Daniel Tannen, H. S. Biren, Lewis E. Moore and W. C. Scott.

In his annual address President Wilson spoke of the accomplishments of the Boosters in 1922 and of the pleasant relations now existing between the jobbers and manufacturers, many of whom the Boosters represent. A year of achievements was forecasted for 1923. The secretary and treasurer made reports, the latter showing the club to be in a good financial condition.

It was voted to change the design of emblem, to add the figure 1 to the gothic B and to raise the initiation fee to include the cost of the pin. H. Solomon, a guest and representing the Syracuse Boosters' Club, No. 5, brought a message from this organization which was organized in March. He stated that his club appreciated the co-operation of the New England club in effecting the New York organization and extended a cordial invitation to attend the Syracuse meetings.

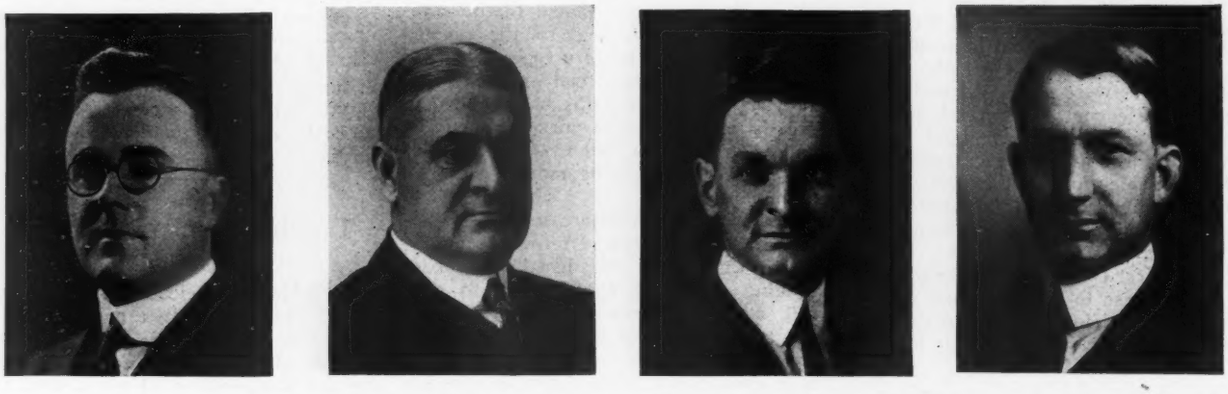
The annual dinner following the meeting was a huge success. An excellent program of entertainment was provided by Chairman Daniel Tannen, of the entertainment committee, and there were songs with hits on the various members. Gifts were exchanged by the members, each Booster donating and receiving a prize. Some drawings created no end of amusement, especially when spark plug members drew spark plugs and piston ring representatives piston rings. A number of very valuable gifts were exchanged.

THE BOOSTERS' PLEDGE

I agree to raise the level of the Automotive Industry by boosting the other fellow, keeping my promises, being truthful, inspiring confidence, playing clean, having a real policy, being ethical, rendering service, not misrepresenting and serving the service that serves by giving both manufacturers and jobbers a square deal.

Boosters No. 5 Now Organized

Permanent organization of the Boosters Club, N. Y. No. 5, was effected at the monthly meeting held at Syracuse, April 2. Harry A. Solomon was elected president, D. E. Malican, treasurer and E. I. Firestone, secretary. The board of directors names at the preliminary meeting in March were elected. Seven new members were elected but a number of applications were held over until such time as the applicants can be investigated. In explanation it is stated that not only must the individual measure up to the policies of the organization but his house is considered as well. The membership is to be limited to 100 which number will be readily obtained owing to the size of the state. After the usual dinner President Solomon outlined the activities for the club and among other matters planned was co-operative meetings with jobbers in the various cities in the state. An exchange bureau to promote a co-operative spirit among Booster clubs is to be launched by the New York Club. Several members of the N. E. No. 1 were present.



The Boosters' Club to Carry on Good Work With Its Same Leaders

From left to right: Thomas F. Wilson, President; D. G. Caywood, vice-president; Chas. M. S. Foster, treasurer; G. S. Fabel, secretary

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The Automobile Accessories Business Association, comprising Philadelphia's accessory dealers and jobbers is planning a minstrel show and dance April 24 under the direction of C. H. Walz, Walz Auto Supply Co. This is one of the many events this live organization presents during the year to keep interest at top pitch.

Replacement Table—Corrected Monthly

Including Piston Ring Sizes, Carburetor Sizes, Hose Sizes, Fan Belt Sizes, Brake Lining Sizes and Truck Frame Dimensions

Note: Under Carburetor Inlet Diameter Will be Found Either the Size of Main Air Intake or the Gasoline Fuel Line

Fan Belt Type: V—V-Shape, F—Flat, R—Round

NAME, MODEL AND TONNAGE	ENGINE												BRAKE LINING								FRAME				
	Piston Rings		Carburetor			Upper Hose		Lower Hose		Fan Belt			Service				Emergency				Length			Width	
	No. per Cyl.	Width	Outlet Diameter	Inlet Diameter	Vertical or Horizontal	Length	Width	Length	Width	Length	Width	Type	Length	Width	Thickness	No. of Pieces	Length	Width	Thickness	No. of Pieces	Back of Driver's Seat	Driver's Seat to Center of Rear Axle	Over All	Over All	Clearance at Lowest Point of Chassis
Acason R–1	4	¼	1	....	....	.....	.....	.....	.....	.....	.....	...	11½	3	¼	2	11½	3	¼	2	112	.....	.....	34	.....
Acason RB–1½	4	¼	1	....	....	.....	.....	.....	.....	.....	.....	...	11½	3½	¼	2	11½	3½	¼	2	112	.....	.....	34	.....
Acason H–2½	3	¼	1¼	....	....	.....	.....	.....	.....	.....	.....	...	13½	3½	¼	2	13½	3½	¼	2	130	.....	.....	35	.....
Acason L–3½	3	¼	1¼	....	....	.....	.....	.....	.....	.....	.....	...	16	3¾	¼	2	16	3¾	¼	2	163¾	.....	.....	35	.....
Acason M–5	3	¼	1½	....	....	.....	.....	.....	.....	.....	.....	...	18	4½	¼	2	18	4½	¼	2	167½	.....	.....	35	.....
Ace, Series A–1½	3	⅛	1	1	V	7	1¾	8	1¼	40⅝	2	F	12	3¼	¼	4	12	3¼	¼	4	122½	76⅜	215¼	32	9
Ace, Series A–2	3	⅛	1¼	1¼	V	6½	2	11	1¼	42⅝	2	F	13½	3½	¼	4	13½	3½	¼	4	Opt	85	241	32	9½
Ace 60–3	3	⅛	1¼	1¼	V	10	2	15	1¼	42⅝	2	F	13½	3½	¼	4	13½	3½	¼	4	Opt	84½	241	.....	9½
Acme 20–1	3	⅛	1	1	H	11	2	11	2	38¾	¾	V	11½	2½	¼	4	11½	2½	¼	4	110⅜	63⅜	194	34	11
Acme 30–1½	3	⅛	1	1	V	11	2	11	2	38¾	¾	V	12	3	¼	4	12	3	¼	4	110⅜	63⅜	194	34	10½
Acme 40–2	4	⅛	1	1	V	8	1½	11½	1½	40	1¼	F	12	3¼	¼	4	12	3¼	¼	4	123⅜	74⅜	208	34	9¾
Acme 40L–2	4	¼	1¼	1¼	V	7	1¼	11	1¼	39½	1½	F	12	3¼	¼	4	12	3¼	¼	4	123⅜	74⅜	214½	34	9¾
Acme 60–2½	4	¼	1¼	1¼	V	7	1¼	11	1¼	39½	1½	F	13	3½	¼	4	13	3½	¼	4	132⅜	79⅜	223½	34	10
Acme 60L–3	4	¼	1¼	1¼	V	11½	1½	11½	1½	41¾	1½	F	13	3½	¼	4	13	3½	¼	4	140⅜	79⅜	235½	34	10
Acme 90–4	4	¼	1¼	1¼	V	10	1½	13	1½	41¾	1½	F	15½	3¾	¼	4	15½	3¾	¼	4	150¼	95¼	243	36	10¾
Acme 90L	3	¼	1½	1½	V	11	2	14	2	40½	2	F	15½	3¾	¼	4	15½	3¾	¼	4	155	97¼	256	37	10¾
Acme 125–5	3	¼	1½	1½	V	11	2	14	2	40½	2	F	18	4	¼	4	18	4	¼	4	159¾	99¾	261	37	10
American La France 1R–¾	3	¼	1⅛	1⅛	H	10	1½	10	1½	45	1½	...	*	*	¼	2	48¾	2¾	¼	2	108	60	207⅛	.....	10
American La France 2R–2	3	¼	1⅛	1⅛	H	9	1½	9	1½	40¾	2	...	**	**	¼	2	17	3½	¼	4	156	98	252	.....	10
American La France 2R–2	3	¼	1⅛	1⅛	H	9	1½	9	1½	40¾	2	...	***	***	¼	2	17	3½	¼	4	132	81	231⅛	.....	10
American La France 3R–3½	3	¼	1⅛	1⅛	H	9	....	9	1	40¾	2	...	11¾	8	¼	2	21	4	¼	4	144	90	243⅞	.....	9
American La France 3R–3½	3	¼	1⅛	1⅛	H	9	1	9	1½	40¾	2	...	11¾	8	¼	2	21	4	¼	4	168	104	267⅞	.....	9
American La France 3R–3½	3	¼	1⅛	1⅛	H	9	1½	9	....	40¾	2	...	11¾	8	¼	2	21	4	¼	4	192	114	291⅞	.....	9
American La France 5R–5	3	¼	1⅛	1⅛	H	9	1½	9	1½	40¾	2	...	11¾	8	¼	2	21	4	¼	4	144	90	243⅞	.....	10
American La France 5R–5	3	¼	1⅛	1⅛	H	9	1½	9	1½	40¾	2	...	11¾	8	¼	2	21	4	¼	4	168	104	267⅞	.....	10
American La France 5R–5	3	¼	1⅛	1⅛	H	9	1½	9	1½	40¾	2	...	11¾	8	¼	2	21	4	¼	4	192	114	291⅞	.....	10
Armleder 21–1½	4	¼	1	⅛	V	12	1¾	16½	1¼	31½	2	F	12	3¼	¼	4	12	3¼	¼	4	Opt	67¾	218	32	9¾
Armleder 40B–1½	4	¼	1¼	⅛	V	9½	2	11½	1¼	33¼	2	F	12	3½	¼	4	12	3½	¼	4	Opt	74⅛	217¾	32	9¾
Armleder 40C–1½	3	⅛	1¼	⅛	V	8½	1¼	11½	1¼	34	1¼	F	12	3½	¼	4	12	3½	¼	4	Opt	74⅛	217¾	32	9¾
Armleder KWB–3½	4	¼	1¼	⅛	V	12	2	16½	1¼	35¾	2	F	37	3	⅛	1	16	3¾	¼	8	Opt	89⅛	261½	36	8⅛
Armleder KWC–3½	3	⅛	1¼	⅛	V	10	1½	16½	1¼	35¾	2	F	37	3	⅛	1	16	3¾	¼	8	Opt	89⅛	261½	36	8⅛
Armleder HWB–2½	4	¼	1¼	⅛	V	9½	2	11½	1¼	33¼	2	F	13¼	3½	¼	4	13¼	3½	¼	4	Opt	74⅛	217¾	32	10
Armleder HWC–2½	3	⅛	1¼	⅛	V	8½	1¼	11½	1¼	34	1¼	F	13¼	3½	¼	4	13¼	3½	¼	4	Opt	74⅛	217¾	32	10
Atco B1½	4	¼	1	1	V	11	2	11	1¼	31½	2	F	25½	2½	⅛	2	18	2½	⅛	2	109¾	.....	.....	32	.....
Atco B1–1½	4	¼	1	1	V	11	2	11	1¼	31½	2	F	46	2½	⅛	2	46	2½	⅛	2	109¾	.....	.....	32	.....
Atco A–2½	4	¼	1¼	1¼	V	12	2	11	1¼	33¼	1¼	F	25½	2½	⅛	2	18	2½	⅛	2	124¼	.....	.....	33	.....
Atlas 22–1	3	⅛	1	¼	V	10	1½	11	1	33½	1½	F	40	2	⅛	2	22½	2¼	⅛	1	84¾	.....	.....	33¾	.....
Atterbury 20R–1½	4	⅛	1	⅜	....	8	1½	14	1½	38⅛	1¼	F	11⅛	3¼	¼	4	11⅛	3¼	¼	4	122⅛	72⅞	211¾	34	9½
Atterbury 22C–2½	4	....	1¼	⅜	....	10½	1½	16	1½	40½	1½	F	13⅛	3½	¼	4	13⅛	3½	¼	4	129¼	78¾	225	34	9½
Atterbury 22D–3½	4	....	1¼	⅜	....	10½	1½	16	1½	40½	1½	F	15⅛	3¾	¼	4	15⅛	3¾	¼	4	142¾	93¼	242	37½	8⅛
Atterbury 8E–5	3	¼	1½	⅜	....	14	2	20½	2	40	2	F	17¾	4	¼	4	17¾	4	¼	4	157⅛	80⅛	263	37½	10
Autocar XXI–F–1½	4	⅛	1⅛	.....	.....	3–4	1⅜	5	1⅜	.....	.....	...	16¼	2½	⅛	4	13½	2½	⅛	4	91	67	156	34	9½
Autocar XXI–G–1½	4	⅛	1⅛	.....	.....	3–4	1⅜	5	1⅜	.....	.....	...	16¼	2½	⅛	4	13½	2½	⅛	4	114	90	179	34	9½
Autocar XXVI–5	3	¼	1⅛	.....	.....	3½	1½	3½	1½	49¼	2	F	25½	2¾	¼	4	25½	2¾	¼	4	140	80¾	223	34⅛	10
Autocar XXVI–5	3	¼	1⅛	.....	.....	3½	1½	3½	1½	49¼	2	F	25½	2¾	¼	4	25½	2¾	¼	4	176	116¾	259	34⅛	10
Autocar XXVII–2	3	¼	1⅛	.....	.....	3½	1½	3½	1½	47¼	2	F	22⅝	2	¼	4	22⅝	2	¼	4	131½	76	213	34⅛	10⅛
Autocar XXVII–2	3	¼	1⅛	.....	.....	3½	1½	3½	1½	47¼	2	F	22⅝	2	¼	4	22⅝	2	¼	4	155½	100	237	34⅛	10⅛
Available H–1½	4	⅛	2¼	1⅛	....	11	1⅝	14	1⅝	40	2	...	48	2½	¼	2	36	2½	¼	2	120	80½	201¼	32	9
Available H2	4	⅛	2¼	1⅛	V	12	1⅝	14	1⅝	40	2	F	48	2½	¼	2	36	2½	¼	2	120	84½	212	32	9
Available H–2½	3	⅛	2¼	1⅛	....	11	1⅝	14	1⅝	40	2	...	13½	3½	¼	4	13½	3½	¼	4	144	85⅝	226⅞	32	9
Available H3½	4	⅛	2½	1⅛	V	12	1⅝	14	1⅝	42	2	F	16	3¾	¼	4	16	3¾	¼	4	168	106⅜	254⅞	36	9
Available H5	3	¼	2½	1⅛	....	12	2	16	2	40	2	...	18	4	¼	4	18	4	¼	4	168	112⅝	263½	38	9
Avery 1	3	⅛	....	1	....	10	2	6½	2	31⅜	1½	F	19½	2	⅛	4	18½	2	⅛	4	85	49	169½	34	13
Bell M–1	4	⅛	1	⅛	V	10	2	10	1½	32	2	F	36	2½	⅛	1	42	3	¼	1	110	.....	.....	34	.....
Bell E–1½	4	⅛	1	⅛	V	10	2	10	1½	32	2	F	39	2½	⅛	1	48	3	¼	1	114	.....	.....	34	.....
Bell O–2½	4	⅛	1¼	⅛	V	10	2	10	1½	32	2	F	48	2½	⅛	1	54	3	¼	1	126	.....	.....	34	.....
Bessemer G–1	3	⅛	1	⅛	V	11½	2¼	10	2¼	42	⅝	V	46	2½	¼	2	44	2¼	¼	2	98¼	58½	182¾	34	.....
Bessemer H–2–1½	3	⅛	1	⅛	V	11½	2¼	10	2¼	43	⅝	V	16⅜	2	¼	8	16⅜	2	¼	8	116	76	203	34	.....
Bessemer J2–2½	3	⅛	1¼	⅛	V	12	1½	5	1½	36⅛	1¼	F	18⅜	2¼	¼	8	18⅜	2¼	¼	8	142⅜	92¼	229	34	.....
Bessemer K2–4	3	⅛	1¼	⅛	V	11½	2¼	10	2¼	39⅜	1½	F	55	3½	¼	2	33	4½	¼	1	157½	108	249	38	.....
Bethlehem KN–1	3	⅛	....	1	V	8¼	2⅛	8	2⅛	35½	1¼	F	49½	2¼	⅛	1	20	2¼	⅛	2	89¼	56¼	175	32⅛	10½
Bethlehem GN–2	3	⅛	....	1¼	V	8½	2⅛	9½	2⅛	40⅞	1½	F	52	2½	⅛	1	37	2½	⅛	1	116¾	74	208¼	34½	9¼
Bethlehem HN–3	3	⅛	....	1¼	V	8½	2⅛	9½	2⅛	40⅞	1½	F	61	2½	⅛	1	47	2½	⅛	1	134¾	81½	226¼	34½	8½
Brinton C–1½	3	⅛	1⅛	⅜	....	11	1¼	13	1¼	33	⅛	F	39	2½	⅛	1	38	2½	⅛	1	118	.....	.....	.....	33
Brinton D–2½	3	⅛	1⅛	⅜	....	11	1¼	13	1¼	33	⅛	F	13	3½	¼	2	13	3½	¼	2	135½	.....	.....	.....	33
Brockway S2–1½	3	⅛	1	....	V	10½	2¼	5½	2¼	39	1¼	F	20	2	¼	4	20	2	¼	4	118	72	118½	32	.....
Brockway K4–2½	3	⅛	1¼	....	V	6½	1¾	13	1¼	34	1¼	F	13	3½	¼	4	13	3½	¼	4	142	89½	123½	34	.....
Brockway R–2–3½	3	⅛	1¼	....	V	9½	1¾	14	1¼	34	1½	F	15½	3¾	¼	4	15½	3¾	¼	4	176	102¾	175	36	.....
Brockway T–5	3	¼	1½	....	V	13	2	22	2	40⅜	2	F	17¾	4	¼	4	17¾	4	¼	4	176	104½	176	36	.....
Brown Model B–2½	3	¼	1¼	1¼	H	8	2¼	14	1¼	34	2	F	62	2½	¼	2	48	2½	¼	2	126	69⅜	208	39	.....
Buffalo Tractor-Truck	4	⅛	1¼	⅛	V	7	1⅝	13	1⅝	41½	2	F	21	2¼	¼	4	21	2¼	¼	4	124	82½	224	34	9¾
Casco A–1	4	⅛	1⅛	⅛	V	12	1¾	14½	1¼	34¾	1½	F	48½	2½	⅛	1	48	2¼	⅛	1	104	61	192¼	34	10
Case	3	¼	1⅛	1⅛	V	7	1½	6	1½	47⅛	2	...	25½	2½	⅛	4	24¼	2¼	⅛	4	106	59¼	210	31	13½
Chicago C–1½	4	....	1	1⅛	....	11	1½	15	1½	40	2	...	10	2½	¼	4	10	2	¼	4	145½	75⅛	211½	32	.....
Chicago C–2½	4	....	1¼	1¼	....	11	1½	15	1½	40	2	...	10	2½	¼	4	10	2	¼	4	157½	87⅛	223½	32	.....
Chicago C–3½	4	....	1¼	1¼	....	11	1½	15	1½	46	2	...	12	3½	¼	4	12	2¼	¼	4	170	84½	249	36¾	.....
Chicago D–5	4	....	1¾	1¾	....	11	1½	15	1½	46	2	...	12	3¼	¼	4	12	2¼	¼	4	170	84½	249	36¾	.....
Climber A–20	3	⅛	1	1¼	H	17½	1½	17½	1½	32	1	F	16	2¼	¼	2	16	2⅜	⅛	1	120	96	216	34	14

* Disk Brake 10¼ O. D. 6½ I. D. ** 12 O. D. 7½ I. D. *** 12 O. D. 7½ I. D.

Replacement Table—Continued

NAME, MODEL AND TONNAGE	ENGINE													BRAKE LINING							FRAME				
	Piston Rings		Carburetor			Upper Hose		Lower Hose		Fan Belt				Service				Emergency				Length			Width	
	No. per Cyl.	Width	Outlet Diameter	Inlet Diameter	Vertical or Horizontal	Length	Width	Length	Width	Length	Width	Type		Length	Width	Thickness	No. of Pieces	Length	Width	Thickness	No. of Pieces	Back of Driver's Seat	Driver's Seat to Center of Rear Axle	Over All	Over All	Clearance at Lowest Point of Chassis
Clydesdale 120B–5–6	3	1/4	1 11/16	1/8	V	9	2	18 1/2	2	46 1/2	2	F		18	4	1/4	4	18	4	1/4	4	131			38	
Clydesdale 90–3½–4½	3	1/8	1 5/16	1/8	V	9	1 1/2	14	1 1/2	42	1 1/2	F		16	3 3/4	1/4	4	16	3 3/4	1/4	4	143			38	
Clydesdale 65EX 2½–3	3	1/8	1 5/16	1/8	V	9	1 1/2	14	1 1/2	42	1 1/2	F		13 1/4	3 1/2	1/4	4	13 1/4	3 1/2	1/4	4	132			33 1/4	
Clydesdale 65X–2½–3	3	1/8	1 1/8	1/8	V	11	1 1/2	11	1 1/2	11	1 1/2	F		13 1/4	3 1/2	1/4	4	13 1/4	3 1/2	1/4	4	137			33 1/4	
Clydesdale 42–1½–2	3	1/8	1 1/8	1/8	V	15	2	12	2	41	3/4	V		12	3 1/4	1/4	4	12	3 1/4	1/4	4	117			34	
Clydesdale 20–1–1½	3	1/8	1 1/8	1/8	V	15	2	12	2	41	3/4	V		11 1/4	3	1/4	4	11 1/4	3	1/4	4	95			34	
Clydesdale 18–¾–1¼	3	1/8	1 1/8	1/8	V	15	2	12	2	41	3/4	V		11 1/4	2 1/2	1/4	4	11 1/4	2 1/2	1/4	4	95			34	
Clydesdale 10–¾–1¼	3	1/8	1 1/8	1/8	V	9	2	9	2	41	3/4	V		11 1/4	2 1/2	1/4	4	11 1/4	2 1/2	1/4	4	109			34	
Clydesdale 10A–1–¾–1¼	3	1/8	1 1/8	1/8	V	9	2	9	2	41	3/4	V		11 1/4	2 1/2	1/4	4	11 1/4	2 1/2	1/4	4	109			34	
Commerce 9–1500	3	1/8	1	1/8	V	10	2	10	2	44	3/4	V		50	2	1/8	2	48 1/2	2	1/8	2	92 5/8	53 1/8	193	34	
Commerce 14B–3000	4	1/8	1	1/8	V	10	2	9 1/2	1 1/2	39 3/4	1/4	V		11 1/16	3 1/4	1/4	4	11 1/16	3 1/4	1/4	4	117	75	210	34	8 1/4
Commerce 25B–5000	4	1/8	1 1/4	1/8	V	9 1/2	1 1/2	15 1/2	1 1/2	42	1 1/2	F		13	3 1/2	1/4	4	13	3 1/2	1/4	4	132	84	228 1/2	34	12 1/2
Concord A–2	4	1/4	1 1/4	1/8	H	11	2 3/8	9 1/2	1 1/2	34	2	F		12	3 1/4	1/4	4	12	3 1/4	1/4	4	108 1/4			32 1/4	
Concord AX–2	4	1/4	1 1/4	1/8	H	11	2 3/8	9 1/2	1 1/2	34	2	F		12	3 1/4	1/4	4	12	3 1/4	1/4	4	122 3/4			32 1/4	
Concord B–3	4	1/4	1 1/4	1/8	H	11	2 3/8	9 1/2	1 1/2	34	2	F		13 1/2	3 1/2	1/4	4	13 1/2	3 1/2	1/4	4	122 1/2			32 1/4	
Concord BX–3	4	1/4	1 1/4	1/8	H	11	2 3/8	9 1/2	1 1/2	34	2	F		13 1/2	3 1/2	1/4	4	13 1/2	3 1/2	1/4	4	155 5/8			32 1/4	
Corbitt S–¾	3	1/8	1	1/8	....	8	2	14	2	38	5/8	V		19	2	1/8	2	19	2	1/8	2	105			34	
Corbitt D–1½	3	1/8	1 1/4	1/8	....	8	2	14	2	38	5/8	V		45 1/4	2	1/4	1	45 1/4	2	1/4	1	120			34	
Corbitt C–2	3	1/8	1 1/4	1/8	....	14	1 1/4	13	1 1/4	36	1 1/4	F		51 1/2	2 1/4	1/4	1	51 1/2	2 1/4	1/4	1	138			35	
Corbitt B–2½	3	1/8	1 1/4	1/8	....	14	1 1/4	13	1 1/4	36	1 1/4	F		51 1/2	2 1/4	1/4	1	51 1/2	2 1/4	1/4	1	138			35	
Corbitt AA–5	3	1/4	1 1/2	1/8	....	13	1 1/4	8	1 1/4	36	2	V		69 1/4	3	1/4	1	69 1/4	3	1/4	1	160			38	
Corbitt A–4	3	1/8	1 1/4	1/8	....	13	2	14	2	36	1 1/4	V		64	2 1/2	1/4	1	64	2 1/2	1/4	1	160			35	
Cyclone A–3000	3	1/8	1	1	V	16	2	16	2	32 1/2	1 1/4	F		21 1/4	2 1/2	1/8	4	19 3/4	2 1/4	1/8	4	113			34	
Day-Elder AN–1½	3	1/8	1	1 1/4	V	8	1 11/16	....	1 1/4	.....	1 1/2	F		.....	3	1/4	4	.....	3	1/4	4	108	35	.....	.....	.....
Day-Elder BN–2	3	1/8	1	1 1/4	V	6	1 1/2	....	1 1/2	.....	1 1/4	F		.....	3 1/4	1/4	4	.....	3 1/4	1/4	4	120	35	.....	.....	.....
Day-Elder DN–2½	3	1/8	1 1/4	1 1/2	V	7	1 1/2	....	1 1/2	.....	1 1/2	F		.....	3 1/2	1/4	4	.....	3 1/2	1/4	4	125	35	.....	.....	.....
Day-Elder CN–3	3	1/4	1 1/4	1 1/2	V	10 1/2	2	....	1 3/8	.....	1 1/2	F		.....	3 1/2	1/4	4	.....	3 1/2	1/4	4	123	35	.....	.....	.....
Day-Elder FN–4	3	1/8	1 1/2	1 3/4	V	6	1 1/2	....	1 1/2	.....	1 1/2	F		.....	3 3/4	1/4	4	.....	3 3/4	1/4	4	148	35	.....	.....	.....
Day-Elder EN–5–6	4	1/4	1 1/2	1 3/4	V	12	2	....	1 1/4	.....	2	F		.....	4	1/4	4	.....	4	1/4	4	155	37	.....	.....	.....
Dearborn BW–2	3	....	1	....	....	8 3/4	2	6	1 3/4	37	1	F		18	2 1/2	1/8	2	18	1 1/2	1/8	2	130	.....	.....	32	.....
Dearborn F–1½	3	....	1	....	....	12	2	8	1 3/4	37	1	F		16 1/2	2 1/2	1/8	2	16 1/2	1 1/2	1/8	2	96 1/2	.....	.....	34	.....
Dearborn C–1	3	....	....	3/4	....	....	....	....	....	.....	....	....		38	2	....	1	38	2	....	1	107	.....	.....	32	.....
Defiance B–1½	3	1/8	1	1	V	10	2	8	2	40 3/4	1 1/4	F		45	2 1/2	1/8	1	43 1/8	2 1/4	1/8	1	116	.....	.....	34	.....
Defiance 48–2	3	1/8	1	1	V	10	2	8	2	40 3/4	1 1/4	F		54 1/8	2 1/2	1/8	1	52 1/2	2 1/4	1/8	1	116	.....	.....	34	.....
Defiance D	3	1/8	1	1	V	10	2	8 1/2	1 1/4	40 3/4	1 1/4	F		45	2 1/2	1/8	1	43 1/8	2 1/4	1/8	1	120	.....	.....	34	.....
Defiance E	3	1/8	1	1	V	10	2	8 1/2	1 1/4	40 3/4	1 1/4	F		54 1/8	2 1/2	1/8	1	52 1/2	2 1/4	1/8	1	120	.....	.....	34	.....
Defiance EL	3	1/8	1	1	V	10	2	8 1/2	1 1/4	40 3/4	1 1/4	F		54 1/8	2 1/2	1/8	1	52 1/2	2 1/4	1/8	1	140	.....	.....	34	.....
Denby 31–1¼	3	1/8	1	1	....	9	2	12	2	41 1/8	3/4	V		8 1/2	4	1/4	2	52	2 1/2	1/8	2	97 5/8	.....	.....	34	.....
Denby 33–2	3	1/8	1	1	....	9	2	12	2	41 1/8	3/4	V		8 1/2	4	1/4	2	46 1/2	1 1/2	1/8	2	120	.....	.....	33 1/4	.....
Denby 35–3	3	1/8	1 1/4	1 1/4	....	8	1 5/8	14 1/4	1 1/4	34 1/4	1 1/4	F		8 1/2	4	1/4	2	51	3	1/8	2	143 3/4	.....	.....	33 1/4	.....
Denby 27–4	3	1/8	1 1/4	1 1/4	....	13	1 3/4	16 1/4	1 1/4	38 1/2	1 1/2	F		8 1/2	4	1/4	2	58	2 1/2	1/8	2	140	.....	.....	34	.....
Denby 210–5	3	1/8	1 1/4	1 1/4	....	13	1 3/4	16 1/4	1 1/4	38 1/2	1 1/2	F		8 1/2	4	1/4	2	89	2 1/4	1/8	2	140	.....	.....	34	.....
Dependable Dispatch A-1 1/4	4	1/8	1	1/8	V	14	2 1/4	15	1 1/4	37 1/2	2	F		53 1/4	2 1/4	1/8	1	38 1/4	2 1/4	1/8	1	108	.....	.....	33 1/2	.....
Dependable C–2	4	1/8	1	1/8	V	14	2 1/4	15	1 1/4	37 1/2	2	F		53 1/2	2 1/2	1/8	1	38 1/2	2 1/2	1/8	1	121	77	215	33	9 1/2
Dependable D–2½	4	1/4	1 1/4	1/8	V	10	2 1/4	11 1/2	1 1/4	37 1/2	2	F		53 1/2	2 1/2	1/8	1	38 1/2	2 1/2	1/8	1	140	77	215	33	9 1/2
Dependable E–3	4	1/4	1 1/4	1/8	V	10	2 1/4	11 1/2	1 1/4	37 1/2	2	F		63	2 1/2	1/8	1	49	2 1/2	1/8	1	152	92	248	33	9 1/2
Dependable G–3½	4	1/4	1 1/4	1/8	V	13	2	13	1 1/4	37 1/2	2	F		63	2 1/2	1/8	1	49	2 1/2	1/8	1	170	.....	.....	33	.....
Diamond T–O3–1–1¼	3	1/8	1	1 1/4	V	9	1 1/4	6	1 1/4	35	2	F		48	2 1/2	1/8	2	33	2 1/2	1/8	2	100	.....	.....	34	.....
Diamond T–FS&T–1½	3	1/8	1	1 1/4	V	9	1 1/4	6	1 1/4	35	2	F		11 1/2	3 1/4	1/4	4	11 1/2	3 1/2	1/4	4	Opt	.....	.....	34	.....
Diamond T–U2–2½	3	1/8	1 1/4	1 1/4	V	9	1 1/4	8	1 1/4	35	2	F		13 1/4	3 1/2	1/4	4	13 1/4	3 1/2	1/4	4	Opt	.....	.....	34	.....
Diamond TK–3½	3	1/4	1 1/4	1 1/2	V	10	1 1/2	10	1 1/2	35	2	F		15 5/8	3 3/4	1/4	4	15 5/8	3 3/4	1/4	4	Opt	.....	.....	37	.....
Diamond T–EL–5	3	1/4	1 1/4	1 1/2	V	10	1 1/2	10	1 1/2	35	2	F		18	4	1/4	4	17 11/16	4	1/4	4	Opt	.....	.....	37	.....
Diamond T–S–5	3	1/4	1 1/2	1 3/4	V	9	2	21	2	40 3/8	2	F		18	4	1/4	4	17 11/16	4	1/4	4	Opt	.....	.....	37	.....
Diehl A	3	....	1	....	....	....	....	....	....	.....	....	....		28	2 1/2	1/8	2	27	2	1/8	2	90	48	174	.....	11
Dixon Model D	4	1/8	1	....	V	11	1 1/2	8	1 1/2	41	....	F		13	3 1/2	1/4	4	13	3 1/2	1/4	4	126	71	221 1/2	34 1/2	9 1/2
Dixon Model C	4	1/8	1 1/4	....	V	11	1 1/2	9	1 1/2	42	....	F		13	3 1/2	1/4	4	13	3 1/2	1/4	4	Opt	71	221 1/2	34 1/2	9 1/2
Dixon Model A	4	1/8	1 1/4	....	V	12	1 1/2	10	1 1/2	42	....	....		....	....	....	....	13	....	1/4	4	Opt	71	221 1/2	36	9 1/2
Dodge Brothers–¾	4	1/8	1 1/8	1/4	V	9	1 1/2	7 1/4	1 1/8	34 1/2	1	F		19 1/4	2 1/4	1/8	4	14 3/8	1 3/4	1/8	4	43 11/16	35 11/16	.....	38	10 1/4
D–Olt	3	1/8	1	1/8	H	18	2	18	2	36	1	F		54	3	1/8	2	42	3	1/8	2	240	68	166	34	11
Dorris K–4–2	3	1/4	1 1/4	1 1/4	V	2 1/4	1 1/2	6 1/4	1 1/4	42 7/8	2	F		13 1/2	3 1/2	1/4	4	13 1/2	3 1/2	1/4	4	142 3/4	96 1/2	233 1/2	34	9
Dorris K7–3½	3	1/4	1 1/4	1 1/4	V	2 1/4	1 1/2	6 1/4	1 1/4	42 7/8	2	F		15 3/4	3 3/4	1/4	4	15 3/4	3 3/4	1/4	4	178 1/2	130 1/2	270 1/2	36	9
Dort 103 Series	3	1/8	1	1	H	6	2 1/4	15 1/8	2 1/4	32 1/2	1	F		35 1/2	1 3/4	1/8	2	36	1 3/4	1/8	2	75	.....	.....	35 3/4	.....
Douglas GW–1½	3	....	1 1/4	1 1/4	....	....	....	....	....	.....	....	....		45	2 1/2	1/8	2	44	2 1/4	1/8	2	118	.....	.....	31	.....
Douglas G–1½	3	....	1 1/4	1/4	....	....	....	....	....	.....	....	....		46	2 1/2	1/8	2	44	2 1/4	1/8	2	118	.....	.....	31	.....
Douglas H–2	3	....	1 1/4	1/4	....	....	....	....	....	.....	....	....		55	2 1/2	1/8	2	52	2 1/4	1/8	2	118	.....	.....	31	.....
Douglas HW–2	3	....	1 1/4	1/4	....	....	....	....	....	.....	....	....		54	2 1/2	1/8	2	42	2 1/4	1/8	2	118	.....	.....	31	.....
Douglas I–3	3	....	1 1/4	1/4	....	....	....	....	....	.....	....	....		58	2 1/2	1/8	2	44	2 1/4	1/8	2	132	.....	.....	31	.....
Drake T–60	3	1/8	1 1/4	1 1/2	V	9	1 1/2	8	1 1/4	32	1 1/4	F		42 1/4	2 1/2	1/8	1	37	2 1/2	1/8	1	106	.....	.....	34	.....
Duplex E–3½	3	1/4	1 1/4	1	....	....	....	....	....	.....	....	....		9 1/2	2 1/2	1/4	2	5 1/2	2 1/2	1/4	2	126	.....	.....	39 3/8	.....
Duplex A	....	....	1 1/4	1 1/2	....	....	....	....	....	.....	....	....		.....	2	....	4	.....	2	....	4	121	.....	.....	34	.....
Eagle 100–2	4	1/8	1 1/4	1	V	14	2	16	1 1/4	33 3/8	1 1/2	..		49 1/2	3	1/8	1	46	2	1/8	1	Opt	.....	.....	36	.....
Eugol 752–1	3	1/4	1 3/4	1/8	V	8	1 3/4	15 1/2	1 1/4	32 3/4	1 1/2	F		11	2 1/2	1/4	2	11	2 1/2	1/4	2	102	.....	.....	30	.....
Fageol 1½–2	3	1/4	1 1/8	1 1/2	V	15 1/2	1 1/4	11 1/2	1 1/4	31	5/8	V		19 1/4	1 3/4	1/8	2	19 1/4	1 3/4	1/8	2	120	.....	.....	30	.....
Fageol 2½–3	3	1/4	1 11/16	1 11/16	V	10	1 1/4	14 3/4	1 1/4	34 3/4	1 1/2	F		13 1/4	3 1/4	1/4	2	13 1/4	3 1/4	1/4	2	141	.....	.....	34	.....
Fageol 3½–4	3	1/4	1 5/8	2	V	9	1 1/2	17 1/2	1 1/2	40 1/2	1 1/2	F		15 1/2	3 3/4	1/8	2	15 1/2	3 3/4	1/8	2	159 1/2	.....	.....	37 3/4	.....
Fageol 5–6	3	1/4	1 5/8	2	V	9	1 1/2	17 1/2	1 1/2	40 1/2	1 1/2	F		18	4	1/8	2	18	4	1/8	2	161 1/4	.....	.....	37 3/4	.....
Federal R–2–1	4	1/8	1	....	V	....	1 1/2	....	1 1/2	.....	....	F		.....	....	....	4	.....	....	....	4	110	.....	.....	.....	.....
Federal S–21–1½	4	1/8	1	....	V	....	1 1/2	....	1 1/2	.....	....	F		.....	....	....	4	.....	....	....	4	118	.....	.....	.....	.....
Federal S–22–1½	4	1/8	1	....	V	....	1 1/2	....	1 1/2	.....	....	F		.....	....	....	4	.....	....	....	4	118	.....	.....	.....	.....
Federal U–2–2½	3	1/8	1 1/4	....	V	....	1 1/4	....	1 1/2	.....	....	F		.....	....	....	4	.....	....	....	4	134	.....	.....	.....	.....
Federal WL–4	3	1/8	1 1/4	....	V	....	1 1/2	....	1 1/2	.....	....	F		.....	....	....	4	.....	....	....	4	154	.....	.....	.....	.....
Federal X2–5	4	1/4	1 1/2	....	V	....	1 3/4	....	1 1/2	.....	....	F		.....	....	....	4	.....	....	....	4	154	.....	.....	.....	.....
Federal Light Duty	4	1/8	1 1/4	....	V	....	1 1/4	....	1 1/2	.....	....	F		.....	....	....	4	.....	....	....	4	86	.....	.....	.....	.....
Federal Heavy Duty	4	1/8	1 1/4	....	V	....	1 1/4	....	1 1/2	.....	....	F		.....	....	....	4	.....	....	....	4	99	.....	.....	.....	.....
Ford T–1	3	1/4	1.06	1 1/8	H	4	2	....	1 3/4	26 1/8	1 1/8	F		23 3/8	1 1/8	1/8	1	12	1 1/8	1/8	2	60	.....	123	23	9 3/4
Front Drive C–1½	4	1/8	1	1 1/2	V	13 3/4	1 3/4	17	1 3/8	33	2	F		13	3	1/4	2	15	3	1/4	2	124	96	216	36	10 1/2
F. W. D. B–3	3	1/4	1 11/16	1/8	....	4	2	5	1 1/2	40	1 1/8	F		27	3 1/2	1/4	1	43	2 3/4	1 1/4	1	148	97	200	36	9 3/4
Garford 15–1	4	1/8	1	....	V	....	....	....	....	34	1 1/2	F		11	2 1/2	1/4	4	11	2 1/2	1/4	4	96	61	187	34	11
Garford 25B–1½	3	1/8	1 1/4	....	H	....	....	....	....	37 1/8	1	F		11 3/4	3 1/4	1/4	4	11 3/4	3 1/4	1/4	4	108	70	200	34	9 1/2
Garford 70H–2½	4	1/4	1 1/4	....	V	....	....	....	....	34 1/16	2	F		13 1/8	3 1/2	1/4	4	13 1/8	3 1/2	1/4	4	121	74	214	34	9 1/2
Garford 77D–4	4	1/4	1 1/4	....	V	....	....	....	....	39	2	F		15 5/8	3 3/4	1/4	4	15 5/8	3 3/4	1/4	4	144	88 1/2	246	36	9 1/2
Garford 68D–5	4	1/4	1 1/2	....	V	....	....	....	....	41 1/8	2	F		17 3/4	4	1/4	4	17 3/4	4	1/4	4	150	88 1/2	251	36	10
Garford 150–A–7½	4	1/4	1 1/2	....	V	....	....	....	....	41 1/16	2	F		10 1/2	4	1/8	2	21 1/8	4	1/4	4	150	88 1/2	251	36	11
Gary F–1–1½	4	1/4	1 1/4	1/8	....	....	....	....	....	.....	....	....		11	3	1/4	2	11	3	1/4	4	97 5/8	.....	.....	34	.....
Gary I–2	4	1/4	1 1/4	1/8	....	....	....	....	....	.....	....	....		12	3 1/4	1/4	4	12	3 1/4	1/4	4	120	.....	.....	34	.....
Gary J–2½	4	1/4	1 1/4	1/8	....	....	....	....	....	.....	....	....		13 1/2	3 1/2	1/4	4	13 1/2	3 1/2	1/4	4	120	.....	.....	34	.....
Gary K–3½	4	1/4	1 1/2	1/8	....	....	....	....	....	.....	....	....		15	3 3/4	1/4	4	15	3 3/4	1/4	4	148	.....	.....	36 3/4	.....

Replacement Table—Continued

NAME, MODEL AND TONNAGE	ENGINE												BRAKE LINING								FRAME				
	Piston Rings		Carburetor			Upper Hose		Lower Hose		Fan Belt			Service				Emergency				Length			Width	
	No. per Cyl.	Width	Outlet Diameter	Inlet Diameter	Vertical or Horizontal	Length	Width	Length	Width	Length	Width	Type	Length	Width	Thickness	No. of Pieces	Length	Width	Thickness	No. of Pieces	Back of Driver's Seat	Driver's Seat to Center of Rear Axle	Over All	Over All	Clearance at Lowest Point of Chassis
Gary M–5	4	¼	1½	⅜	....	....	....	....	....	....	....	....	18¼	4	¼	4	18¼	4	¼	4	168	....	....	39	....
Giant 16–2½	3	⅛	1¼	....	....	7½	1¼	11½	1¼	36½	¾	F	13⅛	3½	¼	8	13⅛	3½	¼	8	140½	....	....	33	....
Giant 17–3½	3	⅛	1½	....	....	9½	1¾	12	1¼	36	¾	V	15⅝	3¾	¼	8	15⅝	3¾	¼	8	183½	....	....	36	....
G.M.C. K–16	4	⅛	1¼	1⅝	V	8¾	1½	8	1½	35⅞	⅝	V	49⅝	2⅜	⅛	2	47	2⅛	⅛	2	89	57	183½	34	8¾
G.M.C. K–20	4	¼	1¼	1⅝	V	10	1¾	9½	1¾	37⅛	⅝	V	49⅝	2⅜	⅛	2	47	2⅛	⅛	2	191	....	....	33	....
G.M.C. K–71	4	¼	1¼	1⅝	V	11¾	1¾	9½	1¾	37⅛	⅝	V	15⅛	3¾	¼	4	15⅛	3¾	¼	4	Opt	87½	242½	38	10¼
G.M.C. K–101	4	¼	1¼	1⅝	V	11¾	1¾	9½	1¾	37⅛	⅝	V	17¾	4	¼	4	17¾	4	¼	4	Opt	87½	242½	38	9¾
G.M.C. K–41	4	¼	1¼	1⅝	V	10	1¾	9½	1¾	37⅛	⅝	V	13	3½	¼	4	13	3½	¼	4	Opt	71	221½	33	9½
Graham Bros.	3	⅛	1	¼	V	9	1½	7¼	1¼	36	1	F	50	2½	⅛	1	20	1½	⅛	2	96¾	56¾	197	33½	10¼
Gramm-Pioneer 10 Speed–1	3	⅛	1	1½	V	12	2¼	14½	2¼	29	1	F	48	2	⅛	2	26	2	⅛	1	97	54	180	30⅛	....
Gramm-Pioneer 15–1½–2	3	⅛	1	1½	V	10¼	2	6	2	39	1¼	F	48½	2	⅛	2	45⅞	1½	⅛	2	120	74	205	32	....
Gramm-Pioneer 65–1½–2	3	⅛	1	1½	V	10¼	2	6	2	39	1¼	F	19¾	1¾	⅛	4	19¾	1¾	⅛	4	120	74	205	32	....
Gramm-Pioneer 125	3	⅛	1¼	1½	V	4½	1½	12	1½	32	2	F	45	2	⅛	4	45	2	⅛	4	126	77¾	214	32	....
Gramm-Pioneer 30–3	3	¼	1¼	1½	V	11	1½	9	1½	33¾	2	F	22¾	2¼	¼	4	22¾	2¼	¼	4	129¾	81¾	226¾	36	....
Gramm-Pioneer 75P–3½	3	¼	1¼	1½	V	11	1½	9	1½	33¾	2	F	22¾	2¼	¼	4	22¾	2¼	¼	4	129¾	....	....	36	....
Gramm-Pioneer 40–4	3	¼	1¼	1½	V	11	1½	9	1½	33¾	2	F	28¾	2¾	¼	4	28¾	2¾	¼	4	144	87¾	240¾	36	....
Gramm-Pioneer 50–5–6	3	¼	1½	1¾	V	23¼	2	13¾	1½	40¾	2	F	32⅛	2¾	¼	4	32⅛	2¾	¼	4	132	97	263½	36	....
G. W. W.	3	¼	1¼	1¾	V	12	1¾	11	1¾	37	2	F	49	2½	¼	2	47	1½	⅛	2	89	72	192	32	11½
Hall 2-Worm–2½	3	⅛	....	....	....	8	1¼	12½	1¼	32	1¼	F	11½	3	¼	4	11½	3	¼	4	144	....	....	38	....
Hall 3½–Worm	3	⅛	....	....	....	12½	1¾	15½	1¼	38½	1½	F	15	3¾	¼	4	15	3¾	¼	4	180	....	....	39	....
Hall 5–Worm	3	⅛	....	....	....	12½	1¾	15½	1¼	38½	1½	F	18	4	¼	4	18	4	¼	4	144	....	....	39	....
Hall 7-Chain	3	⅛	....	....	....	12½	1¾	15½	1¼	38½	1½	F	18	4	¼	4	18	4	¼	4	144	....	....	39	....
Harvey WOA–2	4	¼	1¼	2	V	11	2	14	1¼	35⅝	2	F	45	2	¼	2	45	2	¼	2	139	87	242	32	10
Harvey WFB–2½	4	¼	1½	2	V	11	2	14	1¼	35⅝	2	F	50	2¼	¼	2	50	2¼	¼	2	139	87	242	32	10
Harvey WHB–3½	4	¼	1½	2	V	12	2	14	1¼	35⅝	2	F	56½	2½	¼	2	56½	2½	¼	2	108	85¾	261	35	9
Harvey WFT–6	4	¼	1½	2	V	11	2	14	1¼	35⅝	2	F	50	2¼	¼	2	50	2¼	¼	2	85	52	191	32	10
Harvey WHT–10	4	¼	1½	2	V	12	2	14	1¼	35⅝	2	F	56½	2½	¼	2	56½	2½	¼	2	93	52½	195	35	9
Hawkeye O	4	⅛	....	1	V	12	2	9	1¼	....	1½	F	....	....	....	....	....	....	....	....	....	....	....	....	....
Hawkeye K	4	⅛	....	1	V	12	2	9	1¼	....	2	F	....	....	....	....	....	....	....	....	....	....	....	....	....
Hawkeye M	4	¼	....	1¼	V	12	2¼	9	1½	....	2	F	....	....	....	....	....	....	....	....	....	....	....	....	....
Hawkeye N	4	¼	....	1¼	V	14	2½	12	1½	....	2½	F	....	....	....	....	....	....	....	....	....	....	....	....	....
Hendrickson N–2½	3	¼	1¼	⅛	....	....	....	....	....	....	....	....	12	3½	⅛	4	12	3½	⅛	4	Opt	....	....	32½	....
Hendrickson M–3½	3	¼	1¼	⅛	....	....	....	....	....	....	....	....	16	3¾	⅛	4	16	3¾	⅛	4	Opt	....	....	36	....
Hendrickson K–5	3	¼	1½	⅛	....	....	....	....	....	....	....	....	18	4	⅛	4	18	4	⅛	4	Opt	....	....	38	....
Hurlburt A1½–2	3	....	1¼	1	....	....	....	....	....	....	....	....	22	2	¼	2	22	2	¼	2	132	....	....	35½	....
Hurlburt B2½	3	⅛	1¼	1	....	....	....	....	....	....	....	....	24	2½	¼	2	23	2½	¼	2	154	....	....	34	....
Hurlburt C3½–4	3	¼	1½	1¼	....	....	....	....	....	....	....	....	26	3	¼	2	25	3	¼	2	144½	....	....	34	....
Hurlburt D5–5½	3	¼	1½	1¼	....	....	....	....	....	....	....	....	28	3	¼	2	27	3	¼	2	144½	....	....	34	....
Indiana 12–1½	3	¼	1	....	....	17	1¼	14	1¼	38½	1	F	17½	2	⅛	4	17½	2	⅛	4	108	98⅛	189⅝	32	10½
Indiana 20–2	3	¼	1¼	....	....	6	1½	13	1¼	26⅝	1½	F	44	2	¼	2	44	2	¼	2	126	126	226¾	33	10¼
Indiana 25–2½	3	¼	1¼	....	....	6	1½	13	1¼	26⅝	1½	F	51	2¼	¼	2	51	2¼	¼	2	138	138	238⅝	33	9¾
Indiana 35–3½	3	¼	1¼	....	....	6	1¼	13	1¼	26⅝	1½	F	56	2½	¼	2	56	2½	¼	2	144	144	244⅛	34½	8¾
Indiana 51–5	3	¼	1½	....	....	10	1½	17½	1½	40½	1¾	F	68	3	¼	2	68	3	¼	2	156	156¼	260	37½	10½
Inter'l S—2000 lbs.–Sp. Tr.	3	¼	1¼	1¼	V	9¾	2¼	17¾	2¼	30¼	1	F	38	2	⅛	2	36	2	⅛	2	88	....	....	34	....
International 21–2000 lbs.	3	¼	1¼	1¾	V	6	1½	3½	1½	38⅛	1½	F	43¾	2¼	⅛	2	43¾	2¼	⅛	2	76	....	....	34	....
International 31–3000 lbs.	3	¼	1¼	1¾	V	6	1½	3½	1½	38⅛	1½	F	43¾	2¼	⅛	2	43¾	2¼	⅛	2	106½	....	....	34	....
International 41–4000 lbs.	3	¼	1¼	1¾	V	6	1½	3½	1⅜	38⅛	1⅜	F	50⅝	2¼	⅛	2	50⅝	2¼	⅛	2	111⅛	....	....	32¼	....
International 52–Bus	4	¼	1¼	1¾	V	9	2¼	14½	2	....	....	....	10¾	2¼	¼	4	50⅝	3	⅛	2	216	....	....	34	....
International 61–6000 lbs.	4	¼	1¼	1¾	V	9	2¼	14½	2	....	....	....	50⅝	2¼	⅛	2	50⅝	2¼	⅛	2	118¼	....	....	34	....
International 62 Tractor Tr.	4	¼	1¼	1¾	V	9	2¼	14½	2	....	....	....	50⅝	2¼	⅛	2	50⅝	2¼	⅛	2	....	....	....	34	....
International 101–10,000	4	¼	1¼	1¾	V	9	2¼	14½	2	....	....	....	73⅛	2½	⅛	2	73⅛	2½	⅛	2	147⅝	....	....	34	....
International 102 TractorTr	4	¼	1¼	1¾	V	9	2¼	14½	2	....	....	....	73⅛	2½	⅛	2	73⅛	2½	⅛	2	....	....	....	34	....
Jackson B–3½	3	⅛	1¼	1½	V	11	....	....	....	32½	1¼	F	58½	3½	¼	2	....	....	....	....	150	....	....	36	....
Kalamazoo G–1	3	¼	2⅛	1⅛	....	15½	1½	8	1½	40	1½	F	50	2½	⅛	1	34	2½	⅛	1	120	77½	212	32½	9
Kalamazoo LG	3	¼	2⅛	1⅛	....	6	1½	16	1¼	39	1½	F	50	2½	⅛	1	34	2½	⅛	1	120	77½	212	32½	10
Kalamazoo NH	3	¼	2⅛	1⅛	....	20	1¾	19½	1½	42	2	F	52	2¼	¼	1	52	2¼	¼	1	144	88⅛	241	33	10
Kalamazoo HD	3	¼	2⅛	1⅛	....	20	1¾	19½	1½	42	2	F	52	2¼	¼	1	52	2¼	¼	1	120	88⅛	241	33	10
Kalamazoo SK	3	¼	2⅛	1⅛	....	20	1¾	19½	1½	42	2	F	57	2½	¼	1	57	2½	¼	1	152	88⅛	247	36	9
Kalamazoo OK	3	¼	2⅛	1⅛	....	20	1¾	19½	1½	42	2	F	68	3	¼	1	68	3	¼	2	152	88⅛	247	36	10½
Kearns H–1	3	⅛	1	⅛	H	16	2	16	2	33	1	F	42	2	⅛	1	21	2	⅛	2	90	....	....	34	....
Kearns N–1½	3	⅛	1	⅛	H	18	2	18	2	33	1	F	45	2½	⅛	1	22	2¼	⅛	2	120	....	....	34	....
Kelly-Springfield K34–1½	4	⅛	1	⅛	V	7	1½	13	1½	54½	1	V	17⅜	1⅞	⅛	4	17⅜	1⅞	⅛	4	138	....	....	34	....
Kelly-Springfield K35–2½	4	⅛	1	⅛	V	7	1½	13	1½	55½	1	V	16¾	1⅞	⅛	4	16¾	1⅞	⅛	4	138	....	....	34	....
Kelly-Springfield K38–2½	4	⅛	1	⅛	V	7	1½	13	1½	55½	1	V	17⅜	1⅞	⅛	4	17⅜	1⅞	⅛	4	138	....	....	34	....
Kelly-Springfield K40–3½	4	¼	1¼	⅛	V	5⅛	1⅝	24	1½	63⅝	1	V	21	2⅞	⅛	4	21	2⅞	⅛	4	145	....	....	38	....
Kelly-Springf'd K41–3½–5	4	¼	1¼	⅛	V	5⅛	1⅝	24	1½	60⅝	1	V	3⅛	4½	¼	12	58	2½	⅛	2	144	....	....	36	....
Kelly-Springfield K42–3½	4	¼	1¼	⅛	V	5⅛	1⅝	24	1½	60⅝	1	V	27½	2¾	¼	4	27½	2¾	¼	4	144	....	....	36	....
Kelly-Springfield K50–5	4	¼	1¼	⅛	V	5⅛	1⅝	24	1½	63⅝	1	V	21	2⅞	⅛	4	21	2⅞	⅛	4	145	....	....	38	....
Kelly-Springfield K60–6	4	¼	1¼	⅛	V	5⅛	1⅝	24	1½	63⅝	1	V	21	2⅞	⅛	4	21	2⅞	⅛	4	145	....	....	38	....
Kelly-Sprinf'd K61–5 to 7	4	¼	1¼	⅛	V	5⅛	1⅝	24	1½	60⅝	1	V	3⅛	4½	¼	12	58	2½	⅛	2	142	....	....	36	....
Kenworth K–2½	4	¼	1¼	1¼	H	12	2	14	1¼	36	2	...	20	2½	¼	4	47	2¼	¼	4	131	....	....	34	....
Kenworth M–1½	4	¼	1¼	1¼	H	12	2	14	1¼	36	2	...	46	2	¼	2	46	2	¼	2	114	....	....	32	....
Kenworth L–3	4	¼	1¼	1¼	H	13½	2	16	1¼	36	2	...	56	2½	¼	2	56	2½	¼	2	144	....	....	36½	....
Keystone 40–2	3	¼	1	⅛	V	8	2⅛	8	2⅛	38	1	F	50½	3	⅛	1	46¾	2	⅛	1	124	80	214	33	12
Kissel 1 Ton	3	⅛	....	1¼	....	12¼	1¾	10	1½	46¾	2	F	11	3	¼	4	11	3	¼	4	102	....	....	34	....
Kissel-Utility 1½	3	⅛	....	1¼	....	12¼	1¾	10	1½	46¾	2	F	19	2	⅛	4	19	2	⅛	4	120	....	....	34	....
Kissel-Freighter 2	3	⅛	....	1¼	....	12¼	1¾	10	1½	49	2	F	14	3½	¼	4	14	3½	¼	4	144	....	....	34	....
Kissel-Heavy-Duty–4	3	⅛	....	1¼	....	13¾	1¾	10	1½	52¼	2	F	56	2½	⅛	2	56	2½	⅛	2	156	....	....	36	....
Kleiber 1	3	⅛	1¼	1¾	....	13	1½	16	1¼	36	¾	...	12	3½	¼	4	12	3½	¼	4	120	....	....	34	....
Kleiber 1½	3	⅛	1¼	1¾	....	13	1½	16	1¼	38	1¼	...	45	3½	¼	2	12	3½	¼	2	132	....	....	34	....
Kleiber 2	3	⅛	1¼	1¾	....	13	1½	16	1¼	40	1¼	...	13½	3½	¼	4	13½	3½	¼	4	144	....	....	34	....
Kleiber 2½	3	⅛	1¼	1¾	....	13	1¾	16	1¼	40	1¼	...	14	3¾	¼	2	13½	3½	¼	2	150	....	....	34	....
Kleiber 3½	3	⅛	1¼	1¾	....	13	1¾	16	1¼	40	1¼	...	16	3¾	¼	4	16	3¾	¼	4	156	....	....	38	....
Kleiber 5	4	¼	1½	1¾	....	13	1¾	16	1¼	43	1¼	...	18	4	¼	4	18	4	¼	4	168	....	....	38	....
Lange F	4	¼	1⅛	1⅝	V	6	1½	15½	1½	45	1½	F	15¾	3¾	¼	4	15¾	3¾	¼	4	135	84	212½	37	14
Lange E–2½	3	¼	1	1⅝	V	9	1½	15½	1½	42	1½	F	18	3½	¼	4	18	3½	¼	4	138	118⅛	207⅛	33	10
Larrabee X2–1–1¼ Ton	3	⅛	1¼	1¾	V	6	1¼	14	1¼	34	1¼	F	48	2	⅛	2	48	2	⅛	2	108	59	205	34	11
Larrabee J4–1½–2¼ Ton	4	⅛	1	1½	V	6½	1¼	10	1½	41	1¼	F	24	2	⅛	4	24	2	⅛	4	108	67½	199	34	10½
Larrabee K4–2½–3½ Ton	4	¼	1¼	1¾	V	6	1½	11	1½	48	1½	F	27	2¼	¼	4	27	2¼	¼	4	Opt	77	219	34	9¾
Larrabee L4–3½–4½ Ton	4	¼	1¼	1¾	V	6	1½	11	1½	48	1½	F	60	2½	¼	2	60	2½	¼	2	Opt	81	224	36	9
Larrabee W–5–7	4	¼	1½	2¼	V	8½	2	17½	2	44½	2	F	72	3	¼	2	72	3	½	2	152	....	....	36	....
Luedinghaus K2	3	¼	1¼	1⅜	....	9	1¼	5	1¼	....	1½	F	53.4	2½	¼	2	38½	2½	¼	2	120	....	....	34	....
Luedinghaus K2–LS	3	¼	1¼	1⅜	....	9	1¼	5	1¼	....	1½	F	53.4	2½	¼	2	38½	2½	¼	2	145½	....	....	34	....
Maccar L2	4	¼	1¼	1⅝	V	11¼	1½	17	1½	41½	1½	F	11⅝	3¼	¼	4	11⅝	3¼	¼	4	127¼	76¼	221½	34	10⅝
Maccar HA	4	¼	1¼	1⅝	V	11¼	1½	17	1½	41½	1½	F	13⅛	3½	¼	4	13⅛	3½	¼	4	141¾	81¾	242	34	10

Replacement Table—Continued

NAME, MODEL AND TONNAGE	ENGINE												BRAKE LINING							FRAME					
	Piston Rings		Carburetor			Upper Hose		Lower Hose		Fan Belt			Service				Emergency			Length				Width	
	No. per Cyl.	Width	Outlet Diameter	Inlet Diameter	Vertical or Horizontal	Length	Width	Length	Width	Length	Width	Type	Length	Width	Thickness	No. of Pieces	Length	Width	Thickness	No. of Pieces	Back of Driver's Seat	Driver's Seat to Center of Rear Axle	Over All	Over All	Clearance at Lowest Point of Chassis
Maccar H 2	4	1/4	1 1/4	1 5/8	V	9 1/2	1 1/2	15 1/2	1 1/2	41 1/2	1 1/2	F	13 3/16	3 1/2	1/4	4	13 3/16	3 1/2	1/4	4	139 3/4	79 3/4	242	34	10
Maccar M-3	4	1/4	1 1/4	1 5/8	V	11 1/4	1 1/2	15 1/2	1 1/2	41 1/2	1 1/2	F	14 3/4	3 3/4	1/4	4	14 3/4	3 3/4	1/4	4	153 3/4	91 3/4	256	34	8 3/4
Maccar G	4	1/4	1 1/2	1 7/8	V	10 1/2	2	20 1/2	2	40 3/4	2	F	18	4	1/4	4	18	4	1/4	4	163 5/8	100 7/8	.....	37 1/2	9
MacDonald A-7½	4	1/4	1 1/4	....	V	12	2	21	1 1/4	35	2	F	70	3	1/4	1	34	3	1/4	1	.....	.....	.....	.....	.....
Mack AB-1½, 2, 2½-T.-Ch	3	1/2	1 1/4	1 1/2	V	7 1/4	1 1/2	5 3/8	1 1/4	36 5/8	1 1/4	F	12 1/4	4	1/4	2	16 1/2	2 1/2	1/4	4	Opt	.....	.....	33 1/4	.....
Mack Dual R'd'n-1½-2,2½	3	1/2	1 1/4	1 1/2	V	7 1/4	1 1/2	5 3/8	1 1/4	36 5/8	1 1/4	F	18 1/4	3 1/2	1/4	4	12	6	1/4	2	Opt	.....	.....	33 1/4	.....
Mack AB–Tractor 5 Ton	3	1/2	1 1/4	1 1/2	V	7 1/4	1 1/2	5 3/8	1 1/4	36 5/8	1 1/4	F	12 1/4	4	1/4	2	16 1/2	2 1/2	1/4	4	77	.....	.....	33 1/2	.....
Mack AC-3½ to 7½ Ton	3	1/2	1	1 1/2	V	10 1/4	2	6	2	.....	.....	...	16 1/8	3	1/4	4	20 1/2	3 1/2	1/4	4	Opt	.....	.....	37 1/2	.....
Mack AC-Trac. 7 to 15 Ton	3	1/4	1 1/2	1 1/2	V	5 3/4	2 1/4	3 1/4	2	.....	.....	...	16 1/8	3	1/4	4	20 1/2	3 1/2	1/4	4	87	.....	.....	37 1/2	.....
Mason Road King	3	1/4	1 3/8	....	V	11 5/8	2	14 1/8	1 1/2	.....	1 1/2	F	42 1/16	2 3/4	1/2	1	40 5/8	2 3/4	1/2	1	84 3/4	56 1/4	175	30	10
Master JI-1½	4	1/4	1 1/4	1 1/16	H	13 1/2	2	12 1/2	1 1/4	30 1/2	1	F	74 1/2	2 1/2	1/8	1	74 1/2	2 1/4	1/4	1	117 3/4	.....	.....	34 1/8	.....
Master JW-1½	4	1/4	1 1/4	1 1/16	V	13 1/2	2	12 1/2	1 1/4	30 1/2	1	F	12	3 1/4	1/4	2	12	3 1/4	1/4	2	Opt	.....	.....	34 1/8	.....
Master JD	4	1/4	1 1/4	1 1/16	V	13 1/2	2	12 1/2	1 1/4	30 1/2	1	F	8 5/8	4 1/2	1/2	2	53 1/4	3	1/2	2	Opt	.....	.....	34 1/8	.....
Master M-2½	4	1/4	1 1/4	1 1/16	V	13 1/2	2	12 1/2	1 1/4	33	1 1/4	F	74	2 1/2	1/8	1	74 1/2	2 1/4	1/4	1	117 3/8	.....	.....	34	.....
Master O 2½	4	1/4	1 1/4	1 1/16	V	13 1/2	2	11 1/2	1 1/4	33	1 1/4	F	75 1/2	2 1/2	1/8	1	74 1/2	2 1/4	1/4	1	156 3/8	.....	.....	34	.....
Master W-2½	4	1/4	1 1/4	1 1/16	V	13 1/2	2	12 1/2	1 1/4	31	1 1/4	F	13 1/4	3 1/2	1/4	2	13 1/4	3 1/2	1/4	2	117 3/8	.....	.....	34	.....
Master WL-2½	4	1/4	1 1/4	1 1/16	V	13 1/2	2	12 1/2	1 1/4	31	1 1/4	F	13 1/4	3 1/2	1/4	2	13 1/4	3 1/2	1/4	2	156 3/8	.....	.....	34	.....
Master D-2½	4	1/4	1 1/4	1 1/16	V	13 1/2	2	12 1/2	1 1/4	35	1 1/4	F	8 5/8	4 1/2	1/2	2	54 1/16	3	1/2	2	117 3/8	.....	.....	34	.....
Master DL-2½	4	1/4	1 1/4	1 1/16	V	13 1/2	2	12 1/2	1 1/4	35	1 1/4	F	8 5/8	4 1/2	1/2	2	54 1/16	3	1/2	2	156 3/8	.....	.....	34	.....
Master DD-2½	4	1/4	1 1/4	1 1/16	V	13 1/2	2	12 1/2	1 1/4	35	1 1/4	F	8 5/8	4 1/2	1/2	2	56 1/4	3	1/2	2	Opt	.....	.....	34	.....
Master T-6 Tractor	4	1/4	1 1/4	1 1/16	V	13 1/2	2	12 1/2	1 1/4	33	1 1/2	F	74 1/2	2 1/2	1/8	1	74 1/2	2 1/4	1/4	1	72 1/8	.....	.....	34	.....
Master A-3½	4	1/4	1 1/2	1 1/16	V	13 1/2	2	15	1 1/4	35	2	F	16	3 3/4	1/4	2	16	3 3/4	1/4	2	147 3/4	.....	.....	36 3/4	.....
Master AL-3½	4	1/4	1 1/2	1 1/16	V	13 1/2	2	15	1 1/4	35	2	F	16	3 3/4	1/4	2	16	3 3/4	1/4	2	183 3/4	.....	.....	36 3/4	.....
Master E-3½	4	1/4	1 1/2	1 1/16	V	13 1/2	2	15	1 1/4	35	2	F	13 1/4	6	1/4	2	23	4	1/4	4	147 3/4	.....	.....	36 3/4	.....
Master Y-4	4	1/4	1 1/2	1 1/16	V	13 1/2	2	15	1 1/2	35	2	F	13 1/4	5	1/4	2	23	4	1/4	4	Opt	.....	.....	36 3/4	.....
Master EL-3½	4	1/4	1 1/2	1 1/16	V	13 1/2	2	15	1 1/4	35	2	F	13 1/4	6	1/4	2	23	4	1/4	4	183 3/4	.....	.....	36 3/4	.....
Master B-5	4	1/4	1 1/2	1 1/16	V	13 1/2	2	15	1 1/2	37	2	F	13 1/4	4	1/4	2	18	4	1/4	2	162 7/8	.....	.....	39	.....
Master BL-5	4	1/4	1 1/2	1 1/16	V	13 1/2	2	15	1 1/2	37	2	F	13 1/4	4	1/4	2	18	4	1/4	2	186 7/8	.....	.....	39	.....
Master F-5	4	1/4	1 1/2	1 1/16	V	13 1/2	2	15	1 1/2	37	2	F	13 1/4	6	1/4	2	23	4	1/4	4	162 7/8	.....	.....	39	.....
Master FL-5	4	1/4	1 1/2	1 1/16	V	13 1/2	2	15	1 1/2	37	2	F	13 1/4	6	1/4	2	23	4	1/4	4	186 7/8	.....	.....	39	.....
Master DDT-6	4	1/4	1 1/2	1 1/16	V	13 1/2	2	12 1/2	1 1/2	35	1 1/4	F	8 5/8	4 1/2	1/2	2	56 1/4	3	1/2	2	Opt	.....	.....	34 1/2	.....
Master DT-6 Tractor	4	1/4	1 1/4	1 1/16	V	13 1/2	2	12 1/2	1 1/4	35	1 1/4	F	8 5/8	4 1/2	1/2	2	54	3	1/2	2	72 1/8	.....	.....	43	.....
Maxwell 1½	3	1/8	1	1	V	7 3/4	2 1/2	3 1/2	2 1/2	36 1/2	5/8	...	31	1 1/2	1/4	4	19 3/4	1 3/4	1/4	1	102	.....	.....	36	.....
Menominee Hurryton–1	3	1/4	1 1/4	1 3/4	....	6	1 1/2	12	1 1/4	40	1 1/4	F	11	2 1/2	1/4	4	11	2 1/2	1/4	4	102 1/16	.....	.....	33	.....
Menominee H-1½	3	1/4	1 1/4	1 3/4	....	.....	.....	.....	.....	.....	.....	...	13 1/2	3 1/2	1/4	8	.....	.....	.....	...	122	.....	.....	32	.....
Menominee D-2	3	1/4	1 1/4	1 3/4	....	3	1 3/4	3	1 1/2	37 3/4	2	F	13 1/2	3 1/2	1/4	8	42 1/2	2 1/2	1/2	2	146	.....	.....	32	.....
Menominee HT-1¼	3	1/4	1	1 1/2	....	9 1/4	1 3/4	10 1/2	1 1/4	33 3/4	1 1/4	F	47 1/16	2 1/2	1/2	2	33 1/4	2 1/2	1/2	2	102 3/4	.....	.....	32	.....
Menominee RX-5	3	1/4	1 1/2	2	....	3	1 3/4	3	1 3/4	40 3/4	2	F	69 1/16	3 1/2	1/2	2	52	2 1/2	1/2	2	149	.....	.....	38	.....
Menominee G-3½	3	1/4	1 1/4	1 3/4	....	3	1 3/4	3	1 3/4	37 3/4	2	F	15 5/8	3 3/4	1/4	4	15 5/8	3 3/4	1/4	4	149	.....	.....	36	.....
Moreland RR	3	1/4	1	1 1/4	H	8	1 1/2	11 1/4	1 1/2	34	1 1/2	F	49	2 1/2	1/4	2	46	2 1/2	1/4	2	108	56 1/16	208 3/8	34	.....
Moreland BX-1½	3	1/4	1	1 1/4	H	8	1 1/2	11 1/4	1 1/2	34	1 1/2	F	12	3 1/4	1/4	4	12	3 1/4	1/4	4	108	56 1/16	208 3/8	34	.....
Moreland EX-2	3	1/4	1 1/4	1 1/2	H	9	1 1/2	13	1 1/2	42	1 1/2	F	12	3 1/4	1/4	4	12	3 1/4	1/4	4	132	79 1/8	226 1/4	34	.....
Moreland AX-3	3	1/4	1 1/4	1 1/2	H	9	1 1/2	13	1 1/2	42	1 1/2	F	13 1/2	3 1/2	1/4	4	13 1/2	3 1/2	1/4	4	174	101 1/4	253	34	.....
Moreland RX-5	3	1/4	1 1/2	1 3/4	H	9	2	19	2	42	2	F	15 1/2	3 3/4	1/4	4	15 1/2	3 3/4	1/4	4	192	115 1/4	271	38	.....
Napoleon 9–1	3	1/8	1	1/8	H	6 1/2	2 1/4	14	2 1/4	39	1	F	21	4	1/4	1	30	2 1/2	1/4	1	100 3/4	60	193	35 3/4	10
Napoleon 11-1½	3	1/8	1	1/8	H	6 1/2	2 1/4	14	2 1/4	39	1	F	21	4	1/4	1	30	2 1/2	1/4	1	100 3/4	.....	.....	35 3/4	.....
Nash 2018–1–1½	4	1/4	1 1/4	1 1/4	....	3	1 1/2	7 3/4	1 1/4	36	1	F	49 1/16	2	1/4	2	20 1/16	2 1/2	1/4	1	104 1/2	61	193	30 1/2	9 3/4
Nash 3018-2-2½	4	1/4	1 1/4	1 1/4	....	3	1 1/2	.....	.....	44	1	F	50 5/8	3	1/4	2	20 1/16	2 1/2	1/4	1	118 1/4	65	207	31 5/8	9 3/4
Nash 4017-2-2½	3	1/4	1 1/4	1 1/4	....	7	1 1/2	.....	.....	44	2	F	49 1/4	2 1/2	1/4	4	25 1/16	2 1/2	1/4	1	117 1/8	85 1/2	202 1/2	38 1/8	14 1/4
Nelson & LeMoon G-2	4	1/4	1 1/4	1/8	V	9	1 3/8	3 1/2	1 3/8	41 1/4	1 1/4	...	12	3 1/4	1/4	2	12	3 1/4	1/4	2	Opt	.....	.....	.....	11
Nelson & LeMoon G-3	4	1/4	1 1/4	1/8	V	9	1 3/8	3 1/2	1 3/8	41 1/4	1 1/4	...	13 1/2	3 1/2	1/4	2	13 1/2	3 1/2	1/4	2	Opt	.....	.....	.....	11
Nelson & LeMoon G-4	4	1/4	1 1/4	1/8	V	9	1 3/8	3 1/2	1 3/8	41 1/4	1 1/4	...	16 1/2	3 3/4	1/4	2	16 1/2	3 3/4	1/4	2	Opt	.....	.....	.....	11
Nelson & LeMoon G-5	4	1/4	1 1/2	1/8	V	12	2	6	2	40 1/2	2	...	18	4	1/4	2	18	4	1/4	2	Opt	.....	.....	.....	11
Netco DK-2	3	1/4	1 1/4	1 1/16	V	12	1 1/2	16	1 1/4	40 1/16	1 1/2	F	13 1/16	3 1/2	1/4	4	13 1/16	3 1/2	1/4	4	142	94	234 1/2	34 1/4	9
Netco HL-2½-3	3	1/4	1 1/2	1 1/16	V	13	1 1/2	16	1 1/4	41 1/4	1 1/2	F	13 1/16	3 1/2	1/4	4	13 1/16	3 1/2	1/4	4	139 1/2	93 1/2	234 1/2	34 1/4	9
Niles E-2	3	1/4	1 3/4	1 3/4	V	8	1 1/4	11	1 1/4	30	3/4	F	12	3 1/4	1/4	2	12	3 1/4	1/4	2	147	75	202	56	9 1/2
Niles H-2½	4	1/4	1 1/4	1 3/4	V	12	2	10	1 1/4	35	2 1/8	F	13 1/16	3 1/2	1/4	2	13 1/16	3 1/2	1/4	2	147	75	214	34 1/4	9 1/2
Noble A21–1¼	4	1/4	1	1 1/16	....	10	1 3/4	12 1/2	1 1/4	33 1/2	1 1/2	F	19	2	1/4	4	19	2	1/4	2	102	74	203	34	.....
Noble B31–2	4	1/4	1	1 1/16	....	7	1 7/8	16 1/2	1 1/4	34 1/4	1 7/8	F	43	2	1/4	2	43	2	1/4	2	126	80	221	34	.....
Noble D51–2½	4	1/4	1 1/4	1 1/16	....	9	2	12	1 1/4	34 1/4	1 7/8	F	21	2 1/4	1/4	4	21	2 1/4	1/4	4	.....	101	207	34	.....
Noble E71–3½	4	1/4	1 1/4	1 1/16	....	14 1/2	2	16	1 1/4	34 1/4	1 7/8	F	57	2 1/2	1/4	2	57	2 1/2	1/4	2	.....	114	218	36	.....
Northway B–2–2	3	1/8	1 1/8	1 3/4	V	5 1/4	2 1/4	13 7/16	1 1/4	46 33/64	5/8	V	50 1/2	2 1/4	1/4	2	50 1/2	2 1/4	1/4	2	133	62	223 1/2	33	9
Northway B-3-3½	3	1/8	1 1/16	1 3/4	V	5 1/4	2 1/4	13 1/16	1 1/4	46 33/64	5/8	V	54	2 1/2	1/4	2	54	2 1/2	1/4	2	173	92	253 1/4	34 5/8	11
Ogden A-2-¾	3	1/8	1	1	H	12	2	6	2	44	3/4	V	11	2 1/2	1/4	4	11	2 1/2	1/4	4	108	56	186	33 1/4	10 1/2
Ogden D–1½	3	1/8	1	1	V	13	2	12	2	44	3/4	V	10 33/64	3	1/4	4	10 33/64	3	1/4	4	120	.....	.....	33 1/4	.....
Ogden E–2½	3	1/8	1 1/4	2	V	10	1 1/8	14	1 1/8	30	1 1/4	F	52	2 1/4	1/4	1	52	2 1/4	1/4	1	144	.....	.....	33 1/4	.....
Ogden F–3½	3	1/4	1 1/4	2	V	11	1/2	16	1 1/2	36	1 1/2	F	15 5/8	3 3/4	1/4	4	10 3/8	3 3/4	1/4	4	168	.....	.....	37	.....
Ogden G–5	3	1/4	1 1/2	3	V	9	2	18	2	40	2	F	11	6	1/4	2	25	4	1/4	4	168	.....	.....	37	.....
O. K.–1½	4	1/4	1 1/4	1 1/16	V	12	2	13 1/2	1 1/4	36	2	F	53	2 1/2	1/4	2	38	2 1/2	1/4	2	117	.....	.....	34	.....
O. K.–2½	4	1/4	1 1/4	1 1/16	V	12	2	13 1/2	1 1/4	36	2	F	62	2 1/2	1/4	2	48	2 1/2	1/4	2	121	.....	.....	35	.....
O. K.–3½	4	1/4	1 1/4	1 1/16	V	12	2	13 1/2	1 1/4	38	2	F	62	2 1/2	1/4	2	48	2 1/2	1/4	2	133	.....	.....	34	.....
Old Reliable B–2½	3	1/4	1 1/4	1 1/4	....	.....	.....	.....	.....	.....	.....	...	54	2	1/4	1	54	2	1/4	1	144	.....	.....	32	.....
Old Reliable C–3½	3	1/4	1 1/2	1 1/2	....	.....	.....	.....	.....	.....	.....	...	60	2 1/2	1/4	1	60	2 1/2	1/4	1	150	.....	.....	32	.....
Old Reliable D–5	3	1/4	1 1/2	1 1/2	....	.....	.....	.....	.....	.....	.....	...	72	3	1/4	1	72	3	1/4	1	156	.....	.....	34	.....
Old Reliable K. L. M.–7	3	1/4	1 1/2	1 1/2	....	.....	.....	.....	.....	.....	.....	...	54	3 1/2	1/4	1	60	4	1/4	1	158	.....	.....	36	.....
Oldsmobile T–1	3	1/8	1 1/8	1 3/8	V	6 1/4	1 1/4	10 1/2	1 1/4	40 1/2	3/4	V	42 1/4	2	1/2	2	41 1/16	2	1/2	1	92 5/8	60 1/8	177 3/4	34	12 1/8
Olympic A–2½	4	1/4	1 1/4	1 1/2	V	13	2	12	1 1/4	34	2	F	13 1/2	3 1/2	1/4	2	13 1/2	3 1/2	1/4	2	Opt	84	240	32 1/2	10
Oneida B9–2	3	1/8	1 1/4	1 1/2	H	9 1/2	1 1/4	9 1/2	1 1/4	38 1/2	2	F	48	2 1/2	1/2	2	34	2 1/2	1/2	2	114	.....	.....	34	.....
Oneida C9–2½	3	1/8	1 1/4	1 1/2	H	9 1/4	1 1/4	9 1/2	1 1/4	38 1/2	2	F	58	2 1/2	1/2	2	43	2 1/2	1/2	2	138	.....	.....	34	.....
Oneida D9–3½	3	1/4	1 1/4	1 1/2	H	7	1 1/4	9 1/2	1 1/2	40	2	F	16	3 3/4	1/4	4	16	3 3/4	1/4	4	157	.....	.....	36	.....
Oneida E9–5	3	1/4	1 1/4	1 1/2	H	7 1/2	1 3/4	9 1/2	1 1/2	40	2	F	18	4	1/4	4	18	4	1/4	4	177	.....	.....	38	.....
Oshkosh A–2	3	1/8	1 1/4	1 1/2	H	16	2	17	2	33 1/4	1 1/4	F	23 5/8	3 1/2	1/4	1	43 1/2	2 1/2	1/2	2	108	75 5/8	189	34	.....
Oshkosh AA–2	3	1/8	1 1/4	1 1/2	H	16	2	17	2	33 1/4	1 1/4	F	23 5/8	3 1/2	1/4	1	43 1/2	2 1/2	1/2	2	144	110 5/8	224	34	.....
Oshkosh B–2½	4	1/8	1 1/4	1 3/4	V	9 3/4	1 1/2	12	1 1/2	36 1/2	2	F	23 5/8	4 1/2	5/8	1	43 1/2	2 1/2	1/2	2	125	85 1/2	211	34	.....
Oshkosh BB2½	4	1/8	1 1/4	1 3/4	V	9 3/4	1 1/2	12	1 1/2	36 1/2	2	F	23 5/8	4 1/2	5/8	1	43 1/2	2 1/2	1/2	2	144	104 1/2	230	34	.....
Packard EC	3	1/4	1 5/8	1 3/4	V	6 1/4	1 1/2	10 3/8	1 1/2	41 1/16	5/8	V	7 11/16	4 3/4	1/4	2	14	2	1/4	4	132	81 1/8	219 1/16	31 3/4	9 3/4
Packard ED	3	1/4	1 5/8	1 3/4	V	6 1/4	1 1/2	10 3/8	1 1/2	43 1/16	5/8	V	9 1/16	4 3/4	1/4	2	17	3	1/4	4	144	89 7/8	235 1/16	39	9
Packard EF	3	1/4	1 5/8	1 3/4	V	6 1/4	1 1/2	10 3/8	1 1/2	43 1/16	5/8	V	9 1/16	6 1/2	1/4	2	18 3/4	3 1/2	1/4	4	144	119 7/8	283 1/16	39	9 1/2
Packard EX	3	1/4	1 5/8	1 3/4	V	6 1/4	1 1/2	10 3/8	1 1/2	41 1/16	5/8	V	7 11/16	4 3/4	1/4	2	14	2	1/4	4	132	81 1/2	219 1/16	31 3/4	12
Paige 54–20–2½	3	1/4	....	1 1/4	....	10 1/2	1 1/2	10 1/2	1 1/2	37 5/8	1 1/4	F	49 5/8	2 1/4	1/4	2	49 5/8	2 1/4	1/4	2	126	.....	.....	33	.....
Paige 51–18–3½	3	1/4	....	1 1/4	....	13	1 1/2	13	1 1/2	37 5/8	2	F	15 5/8	3 3/4	1/4	4	15 5/8	3 3/4	1/4	4	144	.....	.....	35	.....
Paige 52–19–1½	3	1/8	....	1 1/4	....	8	1 1/4	12	1 1/4	36	2	F	11 1/16	3 1/4	1/4	4	11 1/16	3 1/4	1/4	4	126	.....	.....	33	.....
Parker B–23	4	1/8	1	1 1/4	V	9	2	6	1 1/4	32	1 1/2	F	42	2 3/4	1/4	2	42	2 3/4	1/4	2	94 1/2	58 1/2	184 1/2	33	9 1/2
Parker E–23	3	1/8	1 1/4	1 1/2	V	4	1 1/4	16	1 1/4	37 3/4	1 1/4	F	11 3/4	3 3/4	1/4	4	11 3/4	3 1/4	1/4	4	113 1/2	70 1/2	200	33	9 3/4
Parker G1–2½	3	1/4	1 1/4	1 1/2	V	19	1 3/4	16	1 1/2	38	2	F	10 3/4	5	1/4	2	19	2 1/2	1/4	4	127	79	219	33	9 7/8
Parker J20–3½	3	1/4	1 1/4	1 1/2	V	19	1 3/4	16 1/2	1 1/2	38	2	F	10 3/4	5	1/4	2	19	3 1/2	1/4	4	139 1/2	90	231 1/2	33	11
Parker M20–5	3	1/4	1 1/2	1 3/4	V	14	1 3/4	18	1 3/4	40 1/2	2	F	10 3/4	5	1/4	2	24 1/2	4	1/4	4	145	83 1/2	243 1/2	37	10 1/2
Patriot Revere–1	3	1/8	1 1/16	5/8	H	8	2	9	2	39	1 1/4	F	40 1/2	1 3/4	1/4	1	40 1/2	1 3/4	1/4	1	93	56	184	33 1/4	11 3/4
Patriot Lincoln Special–2	3	1/8	1 1/16	5/8	V	6	1 1/4	8	1 1/2	37	1 3/4	F	40 1/2	1 3/4	1/4	1	40 1/2	1 3/4	1/4	1	113	65	207	34	10
Patriot Washington Spl.–3	3	1/4	1 1/16	5/8	V	11	1 1/2	10	2	39	2	F	58	2 1/2	1/4	1	43	2 1/2	1/4	1	150	82	246	34	10
Pierce Arrow–2–X–5	3	1/8	1 1/16	1 5/8	V	16 3/8	2 3/8	14 1/4	2 1/8	43 1/2	1 1/2	F	22 1/4	2 1/4	1/4	4	22 1/4	2 1/4	1/4	4	125 1/16	70 11/16	225	34 1/8	.....

Replacement Table—Continued

NAME, MODEL AND TONNAGE	ENGINE													BRAKE LINING							FRAME				
	Piston Rings		Carburetor			Upper Hose		Lower Hose		Fan Belt				Service				Emergency			Length			Width	
	No. per Cyl.	Width	Outlet Diameter	Inlet Diameter	Vertical or Horizontal	Length	Width	Length	Width	Length	Width	Type		Length	Width	Thickness	No. of Pieces	Length	Width	Thickness	No. of Pieces	Back of Driver's Seat	Driver's Seat to Center of Rear Axle	Over All	Over All	Clearance at Lowest Point of Chassis
Pierce Arrow–3½–W–2	3	1/4	1 11/16	1 7/8	V	11	2 3/16	15 1/2	2 1/16	43 1/2	1 1/2	F		9 11/16	6	1/4	2	18	4 3/4	1/4	4	133 1/4	78 3/4	237	38 1/2	.....
Pierce Arrow–5–R–10	3	1/4	1 11/16	1 7/8	V	11	2 3/8	15 1/2	2 1/8	43 1/2	1 1/2	F		9 11/16	6	1/4	2	20 7/8	4 3/4	1/4	4	139 1/4	84 3/4	243	38 1/8	.....
Pioneer 59AA–1	3	1/4	1 1/4	1 1/2	V	13	2	12	2	35	1	F		14	1 3/4	1/4	4	14	1 3/4	1/4	4	102	.....	.....	30	.....
Pittsburgher 2½	3	1/4	1 1/4	1 1/4	V	6	1 1/2	12	1 1/4	37	1	F		52	2 1/4	1/4	2	52	2 1/4	1/4	2	136	.....	.....	33	.....
Power F–1½	3	1/4	.....	.....	.....	8	1 1/4	12 1/4	1 1/4	39 3/4	2	F		26	2	1/4	4	26	2	1/4	4	143	.....	.....	32	.....
Rainier R31–¾	3	1/4	1	1/4	V	9	2	6	2	43 3/4	5/8	V		11	2 1/2	1/4	4	11	2 1/2	1/4	4	86 1/2	50 3/4	181	34	11 3/4
Rainier R-29–1	3	1/4	1	1/4	V	9	2	6	2	43 3/4	5/8	V		11	2 1/2	1/4	4	11	2 1/2	1/4	4	96 1/2	57 5/8	190 1/4	34	10 1/4
Rainier R36–1½	4	1/4	1	1/4	V	8	1 1/2	14	1 1/2	39 1/2	1 1/4	F		11 3/4	3 1/4	1/4	4	11	3 1/4	1/4	4	111	72 1/4	206 1/2	34	9 5/8
Rainier R28–2–2½	4	1/4	1 1/4	1/4	V	9 1/2	1 1/2	14	1 1/2	42	1 1/4	F		20	2 1/4	1/4	4	20	2 1/4	1/4	4	124 3/4	80 1/2	225	33	9 5/8
Rainier R20–2½–3	4	1/4	1 1/4	1/4	V	9 1/2	1 1/2	14	1 1/2	42	1 1/4	F		13	3 1/2	1/4	4	13	3 1/2	1/4	4	137 1/2	85 1/2	241 3/4	33	10
Rainier R25–3½–5	4	1/4	1 1/4	1/4	V	9 1/2	1 1/2	14	1 1/2	42	1 1/4	F		15 1/2	3 3/4	1/4	4	15 1/2	3 3/4	1/4	4	157 1/2	91	263 1/8	37	8 3/4
Rainier R27–6	4	1/4	1 1/2	1/4	V	9 1/2	1 1/2	14	1 1/2	42	1 3/4	F		18	4	1/4	4	18	4	1/4	4	154 1/2	88	263 7/8	37	9 1/2
Reliance 10A–1½	4	1/4	1 1/4	3/8	V	10 1/2	2	13 1/2	1 3/8	35	2	F		17	2	1/4	4	17	2	1/4	4	122	.....	.....	34	.....
Reliance 20B–2½	4	1/4	1 1/4	3/8	V	10 1/2	2	13 1/2	1 3/8	35	2	F		17	2	1/4	4	17	2	1/4	4	127	.....	.....	32	.....
Reo F–2500 lbs.	3	1/4	1	1 1/4	V	5 1/2	1	5 1/2	1	39 1/2	7/8	F		45 3/8	3	1/4	1	40 1/2	3	1/4	1	81 1/16	55 3/4	171	30	10 1/2
Republic 10-1-10E-1	3	1/4	1	.....	V	12 1/4	2	6	2	40 1/4	1 1/4	F		21 1/4	2 1/2	1/4	4	19 3/4	2 1/4	1/4	4	.....	.....	.....	34	.....
Republic 11X–1½	3	1/4	1	.....	V	12 1/4	2	6	2	40 1/4	1 1/4	F		25 1/4	2 1/2	1/4	4	24 1/4	2 1/4	1/4	2	118	.....	.....	34	.....
Republic 19–2½	3	1/4	1 1/4	.....	V	8	1 1/2	11 3/4	1 1/4	32 1/4	1 1/4	F		25 1/4	2 1/2	1/4	4	24 1/4	2 1/4	1/4	2	121	.....	.....	34	.....
Republic 20–3½	3	1/4	1 1/4	.....	V	7 1/4	1 3/4	5 1/2	1 1/4	36 1/4	1 1/2	F		55 3/4	3 1/2	1/4	2	30 11/16	4 1/2	1/4	1	146	.....	.....	37	.....
Republic Rapid Transit–¾	3	1/4	1	.....	V	12	2 1/4	18 1/2	2 1/4	31 1/16	1	F		19	2	1/4	4	18	2	1/4	4	95	.....	.....	31	.....
Reynolds 23A–2	3	1/4	1 1/4	1 1/16	V	10 1/2	1 1/2	10 1/2	1 1/2	35	2	F		24	2 1/2	1/4	4	24	2 1/2	1/4	4	136	.....	.....	33	.....
Reynolds 23B–3	3	1/4	1 1/4	1 1/16	V	10 1/2	1 1/2	10 1/2	1 1/2	35	2	F		24	2 1/2	1/4	4	24	2 1/2	1/4	4	156	.....	.....	33	.....
Reynolds 23C–25-pas. Bus.	3	1/4	1 1/4	1 1/16	V	10 1/2	1 1/2	10 1/2	1 1/2	35	2	F		Opt	2 1/2	1/4	2	27	2 1/2	1/4	2	220	.....	.....	53 5/8	.....
Rowe CW–1½	3	1/4	1 1/4	1/4	.....	10 1/2	1 3/4	10 1/2	1 1/2	32 1/4	1 1/8	F		19	2	1/4	4	19	2	1/4	4	113	72	192 1/2	33	11
Rowe CDW–2	3	1/4	1 1/4	1/4	.....	10 1/2	1 3/4	10 1/2	1 1/2	32 1/2	1 1/8	F		24	2 1/2	1/4	4	24	2 1/2	1/4	4	123	79	202 1/2	33	10 5/8
Rowe CDW–2½	4	1/4	1 1/4	1/4	V	20	1 3/4	15 1/2	1 1/2	32 1/2	1 1/8	F		24	2 1/2	1/4	4	24	2 1/2	1/4	4	123	103 1/2	224	33	9 3/4
Rowe GSW–3	3	1/4	1 1/4	1/4	.....	20	1 3/4	15 1/2	1 1/2	36 1/4	2	F		24	2 1/2	1/4	4	24	2 1/2	1/4	4	140	96 1/4	224	33	9 1/4
Rowe HW–4	3	1/4	1 1/4	1/4	.....	20	1 3/4	15 1/2	1 1/2	36 1/2	2	F		56 1/2	2 1/2	1/4	2	56 1/2	2 1/2	1/4	2	146	96	230 1/2	36	9
Rowe FW–5	3	1/4	1 1/4	1/4	.....	20	1 3/4	15 1/2	1 1/2	36 1/4	2	F		68	3	1/4	2	68	3	1/4	2	153	107 1/4	237 1/2	38 1/2	10 1/2
Rowe GPW–3	3	1/4	1 1/4	1/4	.....	10	1 1/4	6	1 3/4	.....	.....	...		24	2 1/2	1/4	4	24	2 1/2	1/4	4	152	96 1/4	233	33	12 3/4
Ruggles 15–¾	3	1/4	1	1/4	V	12 1/2	2	20	2	34 3/4	1 1/4	F		43 7/8	2	1/4	2	39	1 3/4	1/4	2	128	97 1/2	170	38 1/2	9 1/4
Ruggles 20R–1¼	3	1/4	1 1/4	1/4	V	7 1/2	2	13 1/2	1 1/4	35	1 1/2	F		48	2 1/2	1/4	2	46 5/8	2 1/4	1/4	2	96 5/8	55 3/8	186 3/4	34	11
Ruggles 20AR–1¼	3	1/4	1 1/4	1/4	V	7 1/2	2	13 1/2	1 1/4	35	1 1/2	F		48	2 1/2	1/4	2	46 5/8	2 1/4	1/4	2	104 1/2	65	194 3/4	34	11
Ruggles 40–2	3	1/4	1 1/4	1/4	V	7 1/2	2	13 1/2	1 1/4	35	1 1/2	F		47 1/2	2 1/2	1/4	2	33 1/4	2 1/2	1/4	2	134 1/4	75 1/2	224	34	8 1/4
Ruggles 40N–2½	3	1/4	1 1/4	1/4	V	7 1/2	2	13 1/2	1 1/4	35	1 1/2	F		58	2 1/2	1/4	2	44	2 1/2	1/4	2	134 1/4	75 1/2	224	34	9 1/4
Rumely A–1½	4	1/4	1 1/16	1 1/16	V	10 1/2	1 3/4	10 1/2	1 1/4	37	2	F		18	2	1/4	4	18	2	1/4	4	122	72	213	34	11
Sanford W15–1½	3	1/4	1	1	H	9	2 1/4	11	1 1/2	40	5/8	V		22 1/4	2 1/4	1/4	4	22 1/4	2 1/4	1/4	4	120	71 3/4	205 3/4	32	11
Sanford 25–2½	3	1/4	1 1/4	1 1/4	V	8	1 1/2	11	1 1/2	32	1 1/8	F		22 1/4	2 1/4	1/4	4	22 1/4	2 1/4	1/4	4	144	109 1/2	238	35	9 3/4
Sanford 35–3½	3	1/4	1 1/4	1 1/4	V	9	2 1/4	11	1 1/2	32	1 1/8	F		55 3/4	2 1/2	1/4	2	55 3/4	2 1/2	1/4	2	144	97 1/2	244	35	8 11/16
Sanford 50–5	3	1/4	1 1/4	1 1/4	V	9	2 1/4	11	1 1/2	32	1 1/8	F		65	2	1/4	2	65	2	1/4	2	144	97 1/2	244	35	10 1/2
Schacht F–2	4	1/4	1 1/4	2	H	11	2	14	1 1/4	37 1/2	2	F		8 1/4	3	1/4	4	13 1/2	3	1/4	4	140	.....	.....	35 3/4	.....
Schacht F–3	4	1/4	1 1/4	2	H	11	2	14	1 1/4	37 1/2	2	F		8 1/4	3	1/4	4	13 1/2	3	1/4	4	140	.....	.....	35 3/4	.....
Schacht E–4	4	1/4	1 1/4	2	H	10 1/2	2	13 1/2	1 1/4	39 1/4	7/8	V		8 1/4	3	1/4	4	15	4	7/8	4	152	.....	.....	35 3/4	.....
Schacht E–5	4	1/4	1 1/4	2	H	10 1/2	2	13 1/2	1 1/4	39 1/4	7/8	V		8 1/4	3	1/4	4	15	4	7/8	4	152	.....	.....	35 3/4	.....
Schacht E–7	4	1/4	1 1/4	2	H	10 1/2	2	13 1/2	1 1/4	39 1/4	7/8	V		8 1/4	3 1/4	1/4	4	15	4	7/8	4	152	.....	.....	35 3/4	.....
Schwartz A–1	3	1/4	1	1/4	V	9 1/2	2 1/4	13	2 1/4	29 1/2	7/8	F		15 5/8	1 3/4	1/4	4	15 5/8	1 3/4	1/4	4	.....	.....	.....	.....	.....
Schwartz K–2	4	1/4	1	1/4	H	10	1 3/4	18	1 1/4	33 1/8	2	F		20 1/4	2 1/4	1/4	4	20 1/4	2 1/4	1/4	4	120	.....	.....	34	.....
Schwartz LS–I–LL–3	4	1/4	1 1/4	1/4	H	10 1/2	2	15	1 1/4	33 1/8	2	F		51 1/2	2 1/4	1/4	2	51 1/2	2 1/4	1/4	2	.....	.....	.....	34	.....
Schwartz MS–M–ML–5	4	1/4	1 1/4	1/4	H	12 1/2	2	17	1 1/4	38 3/8	2	F		69 1/2	3	1/4	2	69 1/2	3	1/4	2	.....	.....	.....	36	.....
Selden Unit 30	3	1/4	1	1 1/16	V	12	2	.....	.....	41	1 1/4	F		11 1/16	3 1/4	1 1/4	4	11 1/16	3 1/4	1/4	4	114	.....	.....	34	.....
Selden Unit 50	3	1/4	1	1 1/16	V	8 3/8	1 1/2	14 3/4	1 1/2	39 1/4	1 1/2	F		13	3 1/2	1/4	4	13	3 1/2	1/4	4	136	.....	.....	34	.....
Selden Unit 31	3	1/4	1	1 1/16	V	3 3/4	1 1/4	12	1 1/4	31	1 1/2	F		13	3 1/2	1/4	4	13	3 1/2	1/4	4	176	.....	.....	34	.....
Selden Unit 70	3	1/4	1 1/4	1 1/16	V	8 3/8	1 1/2	16 1/4	1 1/2	40 3/8	2	F		15 5/8	3 3/4	1/4	4	15 5/8	3 3/4	1/4	4	153	.....	.....	37 1/2	.....
Selden Unit 52	3	1/4	1 1/4	1 1/16	V	8 3/8	1 1/2	16 1/4	1 1/2	40 3/8	2	F		15 5/8	3 3/4	1/4	4	15 5/8	3 3/4	1/4	4	204	.....	.....	52	.....
Selden Unit 53	3	1/4	1 1/4	1 1/16	V	11 1/2	1 1/2	16 1/4	1 1/2	40	2	F		13	3 1/2	1/4	4	13	3 1/2	1/4	4	136	.....	.....	34	.....
Selden Unit 90	3	1/4	1 1/2	1 1/16	V	7	1 3/4	16 3/4	1 1/2	40 3/8	2	F		17 11/16	4	1/4	4	17 11/16	4	1/4	4	153	.....	.....	37 1/2	.....
Service 12–¾	3	1/4	1 1/4	1 1/16	V	13 1/2	2 1/4	14 1/2	2 1/2	35 1/2	1 1/4	F		10 1/16	2 1/2	1/4	4	10 1/16	2 1/2	1/4	4	101 1/2	54	176 3/4	37 1/16	9
Service 25–1¼	3	1/4	1 1/4	1 5/8	V	12 1/2	1 3/4	13	1 1/4	32 3/4	1 1/2	F		19 5/8	1 3/4	1/4	4	19 5/8	1 3/4	1/4	4	106 3/4	65 3/4	190	32	9 1/4
Service 21–1½	3	1/4	1 1/16	1 1/16	H	10	2	6	1 3/4	37 3/4	1	F		12	3 1/4	1/4	2	12	3 1/4	1/4	2	109 1/2	70 1/2	187	34	9
Service 32–2	4	1/4	1 1/16	1 1/16	V	10	2	8	1 1/4	33	1 1/4	F		12	3 1/4	1/4	2	12	3 1/4	1/4	2	121 1/16	81	204 1/2	34	10 1/2
Service 37–2	4	1/4	1 1/16	1 1/16	V	10	2	8	1 1/4	33	1 1/4	F		12	3 1/4	1/4	2	12	3 1/4	1/4	2	121 1/16	.....	.....	34	.....
Service 52–3	4	1/4	1 1/16	1 1/16	V	10	2	8	1 1/4	33	1 1/4	F		13 1/2	3 1/2	1/4	2	13 1/2	3 1/2	1/4	2	131 1/8	91	214 1/2	34	10
Service 72–3½	4	1/4	1 1/16	1 1/16	V	10	2	8	1 1/4	33	1 1/4	F		16	3 3/4	1/4	2	16	3 3/4	1/4	2	150 1/4	104 1/2	233 3/4	38	8 1/2
Service 77–4	4	1/4	1 1/16	1 1/16	V	10	2	10	1 1/4	38 1/4	1 1/2	F		16	3 3/4	1/4	2	16	3 3/4	1/4	2	145 3/4	100	233 3/4	38	8 1/2
Service 102–6	4	1/4	1 1/16	1 1/16	V	10	2	10	1 1/4	38 1/4	1 1/2	F		18 1/2	4	1/4	2	18 1/2	4	1/4	2	145 3/4	100	233 3/4	38	10
Signal NF–1	4	1/4	1 1/16	1 1/16	V	7 1/4	1 1/2	12	1 1/2	39 3/4	1 1/4	F		11	3	1/4	4	11	3	1/4	4	112	.....	.....	34	.....
Signal H 1½	3	1/4	1 1/16	1 1/16	V	8	1 1/2	9	1 1/4	30 1/2	1 1/4	F		11 3/4	3 1/2	1/4	4	11 3/4	3 1/2	1/4	4	120	.....	.....	34	.....
Signal J–2½	3	1/4	1 1/16	1 1/16	V	10	1 1/2	12	1 1/4	30 1/2	1 1/4	F		13 3/8	3 1/2	1/4	4	13 3/8	3 1/2	1/4	4	126	.....	.....	34	.....
Signal M 3½	3	1/4	1 1/16	1 1/16	V	5 1/2	1 1/2	12	1 1/4	34 1/4	1 1/4	F		15 3/4	3 3/4	1/4	4	15 3/4	3 3/4	1/4	4	168	.....	.....	38	.....
Signal R–5	3	1/4	1 1/16	1 5/8	V	8	2	16	2	41	2	F		18 1/8	4	1/4	4	18 1/8	4	1/4	4	172	.....	.....	00	.....
Standard 75–1¼	3	1/4	1	1 1/4	H	10 1/2	2 1/4	14 3/4	1 1/8	39 1/4	1 1/4	F		11 3/4	2 1/2	1/4	4	11 3/4	2 1/2	1/4	4	108	.....	198	38	9 3/4
Standard 1½K–1–1½	3	1/4	1	1 1/16	V	10 1/2	2 1/4	14 3/4	1 1/8	39 1/4	1 1/4	F		10 7/8	3	1/4	4	10 7/8	3	1/4	4	120	.....	210	32	9 1/8
Standard 2½K–2½–3	3	1/4	1 1/4	1 1/16	V	10	1 7/8	16	1 1/8	40 5/8	1 1/2	F		13 1/8	3 1/2	1/4	4	13 1/8	3 1/2	1/4	4	132	.....	220 5/8	32	10
Standard 3½K–3½–5	3	1/4	1 1/2	1 1/16	V	10	1 7/8	16	1 7/8	41 1/2	1 1/2	F		15 5/8	3 3/4	1/4	4	15 5/8	3 1/4	1/4	4	144	.....	240	32	8 3/4
Standard 5K–5–7	3	1/4	1 1/2	1 1/16	V	8	1 7/8	3 1/2	1 7/8	42 1/4	1 3/4	F		17 11/16	4	1/4	4	17	4	1/4	4	144	.....	244 1/2	38	9
Sterling 1½	3	1/4	1 1/4	1/4	V	10	1 1/2	19	1 1/2	38	1 1/2	F		11 3/4	3 1/4	1/4	4	11 3/4	3 1/4	1/4	4	120	70	216	38	.....
Sterling 2	3	1/4	1 1/4	1/4	V	10	1 1/2	19	1 1/2	38	1 1/2	F		13 3/8	3 1/2	1/4	4	13 3/8	3 1/2	1/4	4	120	70	216	33 1/2	.....
Sterling 2½	3	1/4	1 1/4	1/4	V	10	1 1/2	19	1 1/4	38	1 1/2	F		13 3/8	3 1/2	1/4	4	13 3/8	3 1/2	1/4	4	138	84	234	33 1/2	.....
Sterling 3½	3	1/4	1 1/2	1/4	V	13 1/2	1 1/2	22	1 1/2	40 1/2	1 1/2	F		15 3/4	3 3/4	1/4	4	15 3/4	3 3/4	1/4	4	144	85	245	34	.....
Sterling 5–Worm	3	1/4	1 1/2	1/4	V	10	1 1/2	19	1 1/2	40 1/2	1 1/2	F		17 11/16	4	1/4	4	17 11/16	4	1/4	4	158	91	259	38	.....
Sterling 5-Chain E.H.D.	3	1/4	1 1/2	1/4	V	10	1 1/2	19	1 1/2	40 1/2	1 1/2	F		56 1/2	3 1/2	1/4	2	29 11/16	4	1/4	1	158	97	259	38	.....
Sterling 5–Ch. St. E. L. D.	3	1/4	1 1/2	1/4	V	13 1/2	1 1/2	22	1 1/2	40 1/2	1 1/2	F		56 1/2	3 1/2	1/4	2	29 11/16	4	1/4	1	158	97	259	38	.....
Sterling 7½	3	1/4	1 1/2	1/4	V	10	1 1/2	19	1 1/2	40 1/2	1 1/2	F		56 1/2	3 1/2	1/4	2	29 11/16	4	1/4	1	158	97	259	38	.....
Stewart M15–1	3	1/4	.....	1	.....	.....	.....	.....	.....	.....	.....	...		41 3/8	2	1/4	2	22 3/4	2	1/4	1	99 1/2	.....	.....	38	.....
Stewart M9–1½	3	1/4	.....	1	.....	.....	.....	.....	.....	.....	.....	...		48 1/2	2	1/4	2	8	5	1/4	2	119 1/4	.....	.....	32	.....
Stewart M7X	3	1/4	.....	1 1/16	.....	.....	.....	.....	.....	.....	.....	...		50 5/8	2	1/4	2	8	5	1/4	2	132 3/4	.....	.....	32	.....
Stewart M10X	3	1/4	.....	1 5/8	.....	.....	.....	.....	.....	.....	.....	...		60	3	1/4	2	8	5	1/4	2	138	.....	.....	32	.....
Stoughton C–¾	3	1/4	1	1 3/8	V	14	2 1/2	14	2 1/2	33	1 1/2	F		56 1/2	2 1/2	1/4	2	55	2 1/4	1/4	2	92 1/2	57	182	34	10 1/2
Stoughton A–1	4	1/4	1	1 3/8	V	18	1 1/4	15	1 1/4	39 1/4	1 1/2	F		16 3/4	1 3/4	1/4	4	16 3/4	1 3/4	1/4	4	88	57 1/2	181	34	11 1/8
Stoughton B–1½	4	1/4	1	1 3/8	V	18	1 1/4	15	1 1/4	39 1/4	1 1/2	F		19	2	1/4	4	19	2	1/4	4	116	66	210	34	11
Stoughton D–2	4	1/4	1 1/4	1 3/8	V	9	1 1/2	15	1 1/4	40	2	F		23	2 1/4	1/4	4	23	2 1/4	1/4	4	116	70	210	34	9 3/4
Stoughton F–3	3	1/4	1 1/4	1 5/8	V	12	2	15	1 1/4	44	2	F		23	2 1/4	1/4	4	23	2 1/4	1/4	4	127	82	222	36	9 3/4
Super Truck 50	3	1/4	1 1/4	1 1/16	V	19	1 3/4	19	1 1/2	37 1/2	1 1/8	F		51 1/2	2 1/4	1/4	2	51 1/2	1 1/4	1/4	2	135	.....	.....	36	.....
Super Truck 70	3	1/4	1 1/4	1 1/16	V	19 1/2	1 3/4	19	1 1/2	37 1/2	1 1/8	F		55 1/2	2 1/2	1/4	2	55 1/2	2 1/4	1/4	2	144	.....	.....	34	.....
Super Truck 100	3	1/4	1 1/2	1 1/16	V	6	1 3/4	19	1 3/4	42	1 1/8	F		68	3	1/4	2	51 1/2	3	1/4	2	144	.....	.....	34	.....
Thomart Speed	3	1/4	1 1/4	1 1/16	V	9	1 1/4	7 1/4	1 1/4	36 1/2	2	F		19 3/4	1 3/4	1/4	4	19 3/8	1 3/4	1/4	4	102	60 3/8	195	34	10
Tiffin GW–1½	3	1/4	1 1/4	1 1/4	V	.....	.....	.....	.....	.....	.....	...		46	2	1/4	1	46	2	1/4	1	114	70	.....	35	11
Tiffin MW–2½	3	1/4	1 1/4	1 1/4	V	.....	.....	.....	.....	.....	.....	...		52	2 1/4	1/4	1	52	2 1/4	1/4	1	138 1/2	81	.....	32 1/2	11 1/2
Tiffin F–35–3½	3	1/4	1 1/4	1 1/4	V	.....	.....	.....	.....	.....	.....	...		58	2 1/2	1/4	1	58	2 1/2	1/4	1	151	94 1/2	.....	35 1/2	11
Tiffin TW–5	4	1/4	1 1/2	1 1/2	V	.....	.....	.....	.....	.....	.....	...		68	3	1/4	1	68	3	1/4	1	156	89 1/2	.....	38 1/2	11 1/2
Tiffin UW–6	4	1/4	1 1/2	1 1/2	V	.....	.....	.....	.....	.....	.....	...		68	3	1/4	1	68	3	1/4	1	156	89 1/2	.....	38 1/2	11 1/2

Replacement Table – Continued

NAME, MODEL AND TONNAGE	ENGINE													BRAKE LINING							FRAME				
	Piston Rings		Carburetor			Upper Hose		Lower Hose		Fan Belt				Service				Emergency				Length			Width	
	No. per Cyl.	Width	Outlet Diameter	Inlet Diameter	Vertical or Horizontal	Length	Width	Length	Width	Length	Width	Type		Length	Width	Thickness	No. of Pieces	Length	Width	Thickness	No. of Pieces	Back of Driver's Seat	Driver's Seat to Center of Rear Axle	Over All	Over All	Clearance at Lowest Point of Chassis
Titan 2½	4	¼	1¼	1¼	....	....	....	....	....	....	....	....		14	3½	⅛	4	9	5	⅛	2	144	.....	.....	32	.....
Titan 3½	4	¼	1½	1¾	....	....	....	....	....	....	....	....		15	3	⅛	4	14	6	⅛	2	144	.....	.....	32	.....
Titan 5	4	¼	1½	1¾	....	....	....	....	....	....	....	....		15	3	⅛	4	14	6	⅛	2	144	.....	.....	34	.....
Tower J–1½	3	⅛	1¼	1¼	V	7	1¾	11½	1⅜	33	1¼	F		11¾	3½	¼	4	11¾	3¼	¼	4	135¼	74½	224	32½	11½
Tower H–2½	3	⅛	1¼	1¼	V	7	1¾	11½	1⅜	33	1¼	F		13⅛	3½	¼	4	13⅛	3½	¼	4	138¾	75¾	230	32½	10½
Tower G–3½	3	⅛	1½	1½	V	7½	1¾	12	1⅜	36	1½	F		15⅝	3¾	¼	4	15⅝	3¾	¼	4	152⅛	90⅛	248	37	9½
Traffic C–4000	3	⅛	1	⅛	H	10½	2	10½	2	41¼	1¾	F		43½	2½	⅛	2	38	1¾	⅛	2	120¾	67¾	213⅜	42	10¾
Traffic 6000	3	⅛	1	⅛	H	10½	2	10½	2	41¼	1¾	F		52	3	⅛	2	47	2	⅛	2	120¾	69¾	213⅜	34	11¾
Traffic Speedboy	3	⅛	1	⅛	H	10½	2	10½	2	41¼	1¾	F		43½	2½	⅛	2	38	1¾	⅛	2	86	53⅞	174	34	11¾
Transport 15–1	3	⅛	1	1	H	10¾	2	13	2	40⅜	1¼	F		48	2½	⅛	2	46⅜	2¼	⅛	2	98⅛	.....	.....	34	.....
Transport 25–1½	3	⅛	1¼	1¼	H	12	2	12	2	36½	1	F		48½	2	⅛	2	46½	1½	⅛	2	100⅞	.....	.....	34	.....
Transport 35–2	3	⅛	1	1	V	10¾	2	13	2	40⅜	1¼	F		11	3	⅛	2	46½	1½	⅛	2	116⅞	.....	.....	34	.....
Transport 60–3½	4	¼	1¼	1¼	V	9¼	2	10	1¼	32¾	2	F		10¼	3½	⅛	2	48½	2½	⅛	2	123⅛	.....	.....	34	.....
Transport 75–5	4	¼	1¼	1¼	V	12	2	16	1¼	35⅞	2	F		11⅞	3	⅛	4	58	2½	⅛	2	150⅛	.....	.....	36½	.....
Transport 55–3	3	⅛	1¼	1¼	V	9	1½	16	1¼	31½	1¼	F		10¼	3½	⅛	2	48½	2½	⅛	2	123⅛	.....	.....	34	.....
Traylor B	4	¼	1	....	V	....	....	....	....	38	1	F		50	2	¼	2	50	2	¼	2	117	75	204¾	34	10
Traylor C	4	¼	1¼	....	V	....	....	....	....	36	2	F		50	2	¼	2	50	2	¼	2	122	73½	218¾	34	10⅝
Traylor D	4	¼	1½	....	V	....	....	....	....	36	2	F		56½	2¼	¼	2	56½	2¼	¼	2	142	76	241½	34	9¾
Traylor F	4	¼	1¼	....	V	....	....	....	....	37	2	F		59	2½	....	2	59	2½	....	2	165	92½	273¼	35	11
Triangle AA–1	3	⅛	1	1	H	17	2	17	2	34	1	F		22½	1¼	⅛	4	48	2½	⅛	2	94	53	177	35	10
Triangle A–1½	3	¼	1	1	V	14	1¼	14½	1¼	39¼	1½	F		7	4	⅛	2	49	2	⅛	2	126	77½	225	34	12
Triangle B 2½	3	¼	1¼	1¼	V	9	1½	18	1¼	39¼	1½	F		7	4	⅛	2	52	3	⅛	2	132	84½	217½	34	9
Triangle C–2	3	¼	1	1	V	14	1¼	14½	1¼	39¼	1½	F		7	4	⅛	2	52	3	⅛	2	129	81	219⅛	34	12
Triumph HB–2½	4	¼	....	....	V	9	1¾	17	1¼	32½	2	F		46	2½	⅛	2	32	2½	⅛	2	120	.....	.....	34½	.....
Triumph HC–2	4	¼	....	....	V	9	1¾	17	1¼	32½	2	F		46	2½	⅛	2	32	2½	⅛	2	120	.....	.....	34½	.....
Ultimate A–2	4	¼	1¼	1⅝	V	11	2	8	1¼	34	2	F		20	2¼	¼	2	45	2	¼	2	126	.....	.....	32¾	.....
Ultimate AJ2	4	¼	1¼	1⅝	V	11	2	8	1¼	34	2	F		20	2¼	¼	2	45	2	¼	2	126	.....	.....	32¾	.....
Ultimate AJL–2	4	¼	1¼	1⅝	V	11	2	8	1¼	34	2	F		20	2¼	¼	2	45	2	¼	2	150	.....	.....	32¾	.....
Ultimate B–3	4	¼	1¼	1⅝	V	11	2	8	1¼	34	2	F		51	2½	¼	2	51	2¼	¼	2	144	.....	.....	32¾	.....
Ultimate BL3	4	¼	1¼	1⅝	V	11	2	8	1¼	34	2	F		51	2¼	¼	2	51	2¼	¼	2	192	.....	.....	32¾	.....
Ultimate D–5	4	¼	1¼	1⅝	V	11	2	8	1¼	34	2	F		51	2¼	¼	2	51	2¼	¼	2	180	.....	.....	37½	.....
Union FW–2½	3	¼	1¼	1¼	V	20	1¾	19½	1½	37¾	2	F		26	4½	¼	1	52	3	¼	1	133½	77¾	224	32	11½
Union H–4	3	¼	1¼	1¼	V	20	1¾	19½	1½	37¾	2	F		56¾	3½	⅛	1	32	4½	⅛	1	157½	.....	.....	34	.....
Union HW–4	3	¼	1¼	1¼	V	20	1¾	19½	1½	37¾	2	F		26	4¼	¼	1	24	4	¼	2	157½	98	264	34	13½
United 1½	4	¼	1	1⅛	H	15	2½	16	1½	37½	2	F		48	2	⅛	1	48	1½	⅛	1	120	.....	.....	33	.....
United 2½	4	¼	1¼	1⅛	H	7	2½	12	1½	37½	2	F		49	3	⅛	1	49	2½	⅛	1	Opt	.....	.....	33	.....
United 3½	4	¼	1¼	1⅛	H	7	2½	7	1½	37½	2	F		62	3	⅛	1	58	2½	⅛	1	Opt	.....	.....	34	.....
United 5	4	¼	1½	1⅛	H	14½	2½	12	1½	37½	2	F		82½	2¼	⅛	1	88½	2½	⅛	1	Opt	.....	.....	38	.....
U.S.U.–1¼	4	⅛	1	⅛	V	11½	1¾	11½	1¼	33	1¼	F		50½	2½	⅛	2	20	1½	⅛	2	108	70	195	32	9¾
U.S.N.–1½	3	M	1	⅛	H	11½	2	9	1¼	37	1¼	F		50½	2½	⅛	2	46½	1½	⅛	2	120	82	211	34	11
U.S.N.W.–23–1½–2	4	⅛	1	⅛	H	10¾	1¾	11½	1¼	33	1¼	F		21	2¼	⅛	4	21	2¼	⅛	4	120	82	211	34	11
U.S.R.–2½–3	3	⅛	1¼	⅛	V	10	1¾	10	1¼	35	1¼	F		21	2¼	¼	4	21	2¼	¼	4	144	94	241	34	9¾
U.S.S.–3½–4	3	¼	1¼	¼	V	9	1½	8	1½	37	1¼	F		50	2½	¼	2	50	2½	¼	2	156	104	258	36	9
U.S.T. 5–7	4	¼	1½	¼	V	15	2	13	1½	38¾	2	F		62	3	¼	4	33	4	¼	1	168	103	278	36	10½
U.S.S.Spec. 4–5	3	¼	1¼	¼	V	9	1½	8	1½	37	1¼	F		21	4	¼	4	21	3	¼	4	156	.....	.....	36	.....
Velie 46–1½	3	M	1	⅛	V	9	2	12	1¼	41⅜	¾	V		54⅛	2½	⅛	2	52⅛	2¼	⅛	2	120	.....	214½	31	14
Velie 53–2½	3	⅛	1¼	⅝	V	5½	1⅝	12½	1¼	40½	2	F		54⅛	2½	⅛	2	52⅛	2¼	⅛	2	120	.....	.....	.....	31
Vim 50–½–¾	3	....	1	....	....	....	....	....	....	33⅛	....	F		48	....	....	2	46⅝	....	....	2	.....	.....	160	.....	.....
Walker M2	...	...	...	...	...	...	...	...	...	...	...	...		43	2¼	⅛	2	14	1¾	⅛	4	90	.....	.....	32	.....
Walker P3½	...	...	...	...	...	...	...	...	...	...	...	...		53¼	3	⅛	2	19¼	2½	¼	4	140	.....	.....	35	.....
Walker N5	...	...	...	...	...	...	...	...	...	...	...	...		53¼	3	¼	2	19¼	2½	¼	4	162	.....	.....	35	.....
Walker 22	...	...	...	...	...	...	...	...	...	...	...	...		45½	2½	⅛	2	16	2	⅛	4	99	.....	.....	32	.....
Walker 42	...	...	...	...	...	...	...	...	...	...	...	...		53¼	3	¼	2	19¼	2½	¼	4	120	.....	.....	32	.....
Walker Johnson A–2	3	⅛	1	1	V	11½	2	7½	1¾	37	1	F		12	3¼	¼	4	12	3¼	¼	4	117	.....	.....	32	.....
Walker Johnson B3	4	¼	1¼	1¼	V	10	2	8	1¼	33½	1¼	F		13	3½	¼	4	13	3½	¼	4	133	.....	.....	32 1/16	.....
Walter S–5	3	¼	½	2	V	10	1½	18	1½	39	1½	F		15	5	¼	4	57	2½	¼	2	150	.....	.....	36	.....
Ward LaFr'e 2B–2½–3½	3	¼	1¼	1½	V	7	1½	16	1½	41½	1½	F		13	3½	¼	4	13	3½	¼	4	137½	.....	.....	33	.....
Ward LaFrance 4A–3½–5	3	¼	1¾	1¾	V	8½	1½	18	1½	41½	1½	F		15½	3¾	¼	4	15½	3¾	¼	4	170⅛	.....	.....	37	.....
Ward LaFrance 5A–5–7	3	¼	1½	1¾	V	9¼	1½	18	1½	41½	1½	F		18	4	¼	4	18	4	¼	4	170⅛	.....	.....	37	.....
Watson D–1	3	¼	1	1⅜	V	12½	1¾	12	1¼	40	1¼	F		10⅛	2½	¼	4	10⅛	2½	¼	4	99	60	186	30⅛	11
Watson N–3½	⅛	⅛	1¼	1½	V	16½	1¼	3	1¼	34	1¼	F		62	2½	¼	2	47	2½	¼	2	147	.....	.....	37	.....
Watson U–5	3	⅛	1¼	1½	V	16½	1¼	3	1¼	38½	1¼	F		15½	3¼	¼	4	15½	3¾	¼	4	.....	.....	.....	36	.....
White 15–A Taxi	3	¼	1⅛	1⅛	V	7¼	1	6½	1¼	38	1¼	F		46	2½	⅛	2	41⅛	2½	⅛	2	55¾	.....	.....	36	.....
White 15, ¾	3	¼	1⅛	1⅛	V	7¼	1	6½	1¼	38	1¼	F		46	2½	⅛	2	41⅛	2½	⅛	2	76½	.....	.....	34	.....
White 15–45, ¾	3	¼	1⅛	1⅛	V	13½	1½	12	1½	42¼	2	F		53⅞	2½	⅛	2	50⅛	2½	⅛	2	85⅝	46	180	34	10¾
White 20, 2	3	¼	1⅛	1⅛	V	7¼	1	7¼	1¼	38	1¼	F		55½	3½	¼	2	50⅞	3½	¼	2	146	.....	.....	34	.....
White 20–D, 2	3	¼	1⅛	1⅛	V	7¼	1	7¼	1¼	38	1¼	F		55½	3½	¼	2	50⅞	3½	⅛	2	98	.....	.....	34	.....
White 20–45, 2	3	¼	1⅛	1⅛	V	13½	1½	12	1½	42¼	2	F		11⅜	4	¼	4	50⅞	3½	⅛	2	107½	70	202	34	9
White 50, Bus	3	¼	1⅛	1⅛	V	13½	1½	12	1½	42¼	2	F		11⅜	4	¼	4	50⅞	3½	⅛	2	168	.....	.....	70	.....
White 40, 3½–45, 5	3	¼	1⅛	1⅛	V	13½	1½	12	1½	42¾	2	F		11⅜	4	¼	4	25⅞	5	¼	4	164	106½	267	42⅛	13
White 40–D, 3½–45–D, 5	3	¼	1⅛	1⅛	V	13½	1½	12	1½	42¾	2	F		11⅜	4	¼	4	25⅞	5	¼	4	.....	106½	267	42⅛	13
Wichita K–1	3	¼	1⅛	1⅛	V	18½	1¼	12	1¼	52¾	1½	F		19½	2	¼	4	19½	2	¼	4	127½	.....	.....	30	.....
Wichita M–2	3	¼	1⅛	1⅜	V	18½	1¼	12	1¼	52¾	1½	F		49	2	⅛	2	49	2	⅛	2	126½	.....	.....	30	.....
Wichita RX–3	3	¼	1¼	1¾	V	11	1½	11	1½	43¾	1½	F		54	2¼	⅛	2	54	2¼	⅛	2	130	.....	.....	30	.....
Wichita O–4	3	¼	1½	1¾	V	11	1½	11	1½	40	1½	F		56½	2½	¼	2	56½	2½	¼	2	152½	.....	.....	36	.....
Wichita S–5	3	¼	1½	1¾	V	11	1½	11	1½	40	1½	F		66	3	¼	2	66	3	¼	2	163½	.....	.....	36	.....
Wilcox AA–1	3	¼	1	....	....	....	....	....	....	....	....	....		47⅛	2½	⅛	2	33¼	2½	⅛	2	96	.....	.....	34	.....
Wilcox B–1½	3	¼	1¼	....	....	....	....	....	....	....	....	....		47⅛	2½	⅛	2	33¼	2½	⅛	2	132	.....	.....	33	.....
Wilcox C–2½	3	¼	1¼	....	....	....	....	....	....	....	....	....		57½	2½	⅛	2	42½	2½	¼	2	141	.....	.....	33	.....
Wilcox E–3½	3	¼	1¼	....	....	....	....	....	....	....	....	....		57½	2½	¼	2	42½	2½	¼	2	156	.....	.....	33	.....
Wilcox F–5	3	¼	1½	....	....	....	....	....	....	....	....	....		69⅝	3½	¼	2	52	3½	¼	2	148½	.....	.....	36	.....
Wilson 1½	4	⅛	....	1	....	....	....	....	....	....	1¼	....		39½	1¾	⅛	4	39½	1¾	⅛	2	132	72	229	33	10½
Wilson 2½	4	⅛	....	1¼	....	....	....	....	....	....	1¼	....		13¼	3½	⅛	4	13¼	3½	⅛	4	144	90	229	33	9⅝
Wilson 3½	4	⅛	....	1½	....	....	....	....	....	....	1½	....		16	3¾	⅛	4	16	3¾	⅛	4	156	95	245	37	9½
Wilson 5	4	⅛	....	1½	....	....	....	....	....	....	1½	....		18	4	¼	4	18	4	¼	4	156	95	245	37	10⅛
Winter & Hirsch K–2½	4	¼	1⅝	1½	V	12	1½	14	1½	48	1½	F		13½	3½	¼	4	13½	3½	¼	4	144	96	252	32	9
Winter & Hirsch L–3½	4	¼	1⅝	1½	V	12	1½	14	1½	48	1½	F		16	3¾	¼	4	16	3¾	¼	4	196	118	288	36	9
Winther 751–1	3	¼	1	....	H	15¾	2	17	2	36 2/16	1	F		42	2	⅛	2	24	2	⅛	1	102	.....	.....	30	12½
Winther 39–1½	3	¼	1¼	....	V	10	1¾	4½	1½	33¼	1¼	F		50	2¼	¼	2	22½	2¼	¼	1	120	.....	.....	30	12
Winther 430–1½	3	¼	1¼	....	V	11¼	1½	11½	1¼	30⅝	1½	F		50	2¼	¼	2	22½	2¼	¼	1	120	.....	.....	30	12
Winther 450 2½	3	¼	1¼	....	V	11½	1½	6½	1½	37½	1¼	F		52	3	¼	2	22½	2¼	¼	2	120	.....	.....	30	13
Winther 51–2½	3	¼	1¼	....	V	17⅞	1¾	8	1½	42½	2	F		52	3	¼	2	50	2¼	¼	2	144	.....	.....	33	14
Winther 70–3½	3	¼	1¼	....	V	17⅞	1¾	8	1½	42½	2	F		62	3	¼	2	60	2½	¼	2	156	.....	.....	33	14
Winther 109–5	3	¼	1½	....	V	21½	1¾	8	1½	42½	2	F		93	2¼	¼	2	93	2¼	¼	2	156	.....	.....	33	10
Winther 140–7	3	¼	1½	....	V	12	1¾	6	1¾	42¼	2	F		93	2¼	¼	2	93	2¼	¼	2	156	.....	.....	34	10
Wisconsin 2 (Loganville)	3	⅛	1¼	1¼	H	17	2	17	2	34	¼	F		58	2½	⅛	2	56½	2¼	⅛	2	114	.....	.....	34	.....
Wisconsin 2½ (Loganville)	3	⅛	1¼	1¼	V	12	1½	10	1¼	40	¾	V		58	2½	⅛	2	56½	2¼	⅛	2	120	.....	.....	32	.....
Witt Will N–1½	3	⅛	1¼	1¼	V	8	1½	12	1¼	31	1¼	F		48	3¼	¼	4	48	3¼	¼	4	Opt	80½	223	32	10
Witt Will P–2	3	⅛	1¼	1¼	V	8	1½	12	1¼	41	1½	F		52	3½	¼	4	52	3½	¼	4	Opt	80½	223	32	10
Yellow Cab M22–¾	3	⅛	1	1½	V	7½	2	9⅝	2	38½	⅝	V		49	2½	¼	2	45	2¼	¼	2	60	.....	.....	43	.....
Yellow Cab M42-1¼	3	⅛	1	1½	V	7½	2	9⅝	2	38½	⅝	V		11	3	¼	4	11	3	¼	4	92	.....	.....	32	.....

KEY OF ABBREVIATIONS

Note: Numerals on This Page Correspond With Numerals at Head of Specification Columns on Page Following. In All Specifications—O, Own; Op or Opt, Optional

Engine:

Beav—Beaver
Buda
Cont—Continental
GBS—Golden, Belknap & Swartz
Gr-B—Gray-Beal
Her—Hercules
Hin—Hinkley
1 H-Sp—Herschell-Spillman
LeR—Le Roi
Lib—Liberty
LMF—Light Mfg. & Fdy.
Lyco—Lycoming
Mid—Midwest
Sup—Supreme
Wau—Waukesha
Wei—Weidely
Wis—Wisconsin

Valve Arrangement:

H—Overhead
2 L—ELL-Head
S—Sleeve
T—TEE-Head

Radiator (Make):

BW—B & W
Brm—Brenem
Bus—Bush
Can—Candler
Chic—Chicago
Eag—Eagle
EM—English-Mersick
Eur—Eureka
Fed—Fedders
Flex—Flexo
GO—G. & O.
Har—Harrison
Hoo—Hooven
3 Idl—Ideal
Jam—Jamestown
Kue—Kuenz
Liv—Livingston
Lng—Long
McC—McCord
May—Mayo
Mod—Modine
Per—Perfex
R-T—Rome-Turney
SJ—Shotwell Johnson
Spar—Sparton
Spec—Special
Spli—Splitex
Stn—Standard
Whe—Wheeler

Lubrication:

FS—Force and Splash
4 F—Force Feed
S—Splash

Carburetor:

Bent—Bennett
Cart—Carter
Eag—Eagle
Ens—Ensign
Hol—Holly
John—Johnson
King—Kingston
5 Mar—Marvel
Mas—Master
Mill—Miller
Rayf—Rayfield
Scoe—Scoe
Strm—Stromberg
Sheb—Schebler
Stew—Stewart
Till—Tillotson
Zen—Zenith

Fuel Feed:

6 G—Gravity
P—Pressure
V—Vacuum

Governor:

Con—Continental
Dup—Duplex
Han—Handy
Her—Hercules
7 Hin—Hinkley
McC—McCanna
Mon—Monarch
Phar—Pharo
Pier—Pierce
Sim—Simplex
Wau—Waukesha

Ignition System:

Amr—American Swiss
Apo—Apollo
AtK—Atwater Kent
AuL—Auto-Lite
Ber—Berling
Bos—Bosch
Con—Connecticut
Del—Delco
Eis—Eisemann
Kin—Kingston
8 KW—K. W. Ignition Co.
Lor—Louraine
NE—North East
POL—Prest-O-Lite
Rm—Remy
RBo—Robert Bosch
Sim—Simms
Spl—Splitdorf
Tea—Teagle
Wag—Wagner
Wes—Westinghouse

Engine Starter:

AC—Allis-Chalmers
AK—Atwater Kent
AuL—Auto-Lite
Bj—Bijur
Bos—Bosch
Del—Delco
9 Dy—Dyneto
GD—Gray & Davis
LN—Leece-Neville
NE—North East
Rm—Remy
Sim—Simms
USL—U. S. L.
Wes—Westinghouse
Wg—Wagner

Clutch (Make):

B.B—Borg & Beck
B-Li—Brown-Lipe
Covt—Covert
Det—Detlaff
DG—Detroit Gear & Mach.
Dod—Dodge
10 Full—Fuller
Hart—Hartford
Hoos—Hoosier
HS—Hele-Shaw
M-E—Merchant & Evans
Mun—Muncie
T-D—Twin Disc
W-Gr—Warner Gear

Gearset:

B-Li—Brown-Lipe
Cott—Cotta
11 Covt—Covert
Det—Detroit
Dod—Dodge
Dun—Dundore
Durs—Durston
Full—Fuller
G-Le—Grant Lees
MM—Mechanics Mach. Co.
Mun—Muncie
W-C—Warner Corporation
W-Gr—Warner Gear

Location of Gearset:

A—Amidships
12 J—Unit with jackshaft
R—Rear
U—Unit with engine

Universal:

Acm—Acme
Arv—Arvac
Bld—Blood-Brothers
Det—Detroit
Hart—Hartford
KB—Kinsler-Bennett
MM—Mechanics
M-E—Merchant & Evans
Nor—Norwalk
13 Pet—Cleveland Universal
Pick—Pick
Sned—Snead
Spic—Spicer
Ster—Sterling
Ther—Thermoid
UM—Universal Machine
UP—Universal Products
Var—Varied

Springs:

Am—Am. Auto Parts
Arm—Armstrong
Cham—Champion
Del—Delany
Det—Detroit
GC—Garden City
Har—Harvey
IC—Iron City
Kal—Kalamazoo
Lah—Laher
Lig—Liggett
Mar—Maremont
14 Math—Mather
Mer—Merrill
Nat—National
Pen—Penn
Per—Perfection
P.S.—Point Spring Co.
Row—Rowland
Shel—Sheldon
SP—Spring Perch
Stan—Stan-Par
SS—Standard Steel
Ster—Sterling
Tut—Tuthill
US—United States
Vul—Jenkins Vulcan

Front Axle

Col—Columbia
Cont—Continental
Dod—Dodge
Fli—Flint
Sals—Salisbury
15 Sav—Savage
Shel—Sheldon
Shul—Shuler
Stan—Stan-Par
Tim—Timken
Torb—Torbensen
Vul—Vulcan

Final Drive:

B—Bevel Gear
C—Chain
I—Internal Gear
16 P—Spur
R—Double Reduction
S—Spiral Bevel
W—Worm

Rear Axle (Make):

Col—Columbia
Clark
Dun—Dunkirk
Eat—Eaton
Fli—Flint
Huck—Huck
IrM—Iron Mt.
LM—L M Axle
17 Russ—Russel
Sals—Salisbury
Shel—Sheldon
Stn—Standard Parts
Thom—Thomson
Tim—Timken
Torb—Torbensen
Vul—Vulcan
Walk—Walker
Wis—Wisconsin

Rear Axle (Type):

F—Floating
18 D—Dead
½—Semi-Floating
¾—¾-Floating

Steering Gear:

CAS—C. A. S. Products Co.
Dit—Ditwiler
Dod—Dodge
Gem—Gemmer
Jac—Jacox
19 Lav—Lavine
M-P—Muncie Products
Ros—Ross
Sag—Saginaw Products Co.
Woh—Wohlrab

Wheels:

Arc—Archibald
AuW—Auto Wheel
Bim—Bimel
Bud—Budd
Cla—Clark
C&M—Crane & McMahon
Day—Dayton
Det—Detroit
Dis—Disteel
E&O—Eberly & Oris
Hay—Hayes
Hoo—Hoopes Brothers
Imp—Imperial
Ind—Indestructible
Jon—Jones
Kel—Kelsey
20 MM—Michigan Malleable Iron Co.
Mot—Motor Wheel
Mun—Muncie Wheel
Mut—Mutual
Nor—Northern
Pru—Prudden
Roy—Royer
Sch—Schwartz
Smi—Smith
Sta—Stanwell
StM—St. Mary
Stn—Standard
Wal—Walker
Way—Wayne
W-L—Waterhouse & Lester

Rim Equipment:

Bak—Baker
Cle—Cleveland
Det—Detroit
Fir—Firestone
21 Gdy—Goodyear
Hay—Hayes
Jac—Jackson
Jax—Jaxon
Kel—Kelsey
Mil—Miller

Commercial Car Specifications—Corrected Monthly

The Specifications, Chassis Prices, Etc., Are Corrected Each Month From Data Supplied Direct by the Makers. Gasoline Tractor-Trucks Will be Found at the End of Gasoline Commercial Cars

See Preceding Table for Replacement Data. Truck Frame Dimensions Are Included in Same Table

(Where prices are not given it is because we have been unable to get them from authoritative sources)

*This Symbol in the Wheelbase Column Indicates That More Than One Wheelbase is Furnished

TRADE NAME AND MODEL	Chassis Price	ENGINE DETAILS: Make and Model Number (4 cylinder unless otherwise noted.)	Bore and Stroke	N.A.C.C. Horsepower	Valve Arrange't	Radiator (Make)	Lubrication	Carburetor	Fuel Feed	Governor (Make)	Ignition System	Engine Starter	Clutch (Make)	GEARSET: Make and Model Number	Location	Speeds	Universal (Make)	Springs (Make)	FRONT AXLE and Model Number	REAR AXLE: Final Drive	Make and Model Number	Type	Total Gear Reduction in High	Total Gear Reduction in Low	Steering Gear (Make)	TIRES, WHEELS, RIMS: *Pneumatic †Dual ‡Solid — Front	Rear	Wheels (Make)	Rim Equipment	Chassis Weight (Stripped)	Wheelbase
		1			2	3	4	5	6	7	8	9	10	11	12		13	14	15	16	17	18			19			20	21		
1000 Pounds																															
Chevrolet, Sup. LD	510	Own	3 11/16x4	21.7	...	Har	FS	Zen	G	.....	Rm	Rm	Own	.....	U	3	Own	SS	.....	S	.....	1/2	3.77	12.52	M-P	30x3 1/2	30x3 1/2	Hay	Jax	1390	103
Dort	685	Lyco K	3 1/2x5	19.6	L	Fed	S	Cart	V	.....	Con	Bos	Own	.....	U	3	MM	Lig	.....	S	.....	3/4	4.66	15.13	Sag	31x4*	31x4*	Imp	Jac	2015	106
Overland	425	Own	3 3/8x4	18.2	L	Own	FS	Till	G	.....	AuL	AuL	B.B.	Own	U	3	Own	Own	Own	B	Own	1/2	4.5	17.68	Own	30x3 1/2	30x3 1/2	Hay	.....	1462	100
1500 Pounds																															
Acason Fast	....	Own	3 3/4x5	22.5	L	.....	F	Sheb	V	.....	Eis	Wes	Full	.....	U	3	Bld	Det	.....	W	.....	1/2	6.25	25	Ros	34x5*	34x5*	Bim	.....	3080	142
American LaFrance 1R	....	Own	4 1/4x5	28.9	L	Bus	FS	Strm	G	.....	....	Wes	Own	Own	A	3	Own	Mer	Own	B	Own	...	4.7	25.3	Own	33x5*	33x5*	Hoo	.....	.....	139 1/2
Chevrolet G	575	Own	3 11/16x4	21.7	H	Har	FS	Zen	G	.....	Rm	Rm	Own	.....	...	3	Own	SS	.....	S	.....	1/2	5.42	18	M-P	31x4*	34x4 1/2*	Hay	Jax	1825	120
Commerce 9	1315	Cont N	3 3/4x5	22.5	L	Lng	S	Zen	V	.....	Eis	Bj	DG	Det	U	3	Spic	Am	.....	B	Sals	3/4	5.73	18.33	Jac	32x4 1/2	32x4 1/2	Bud	.....	3100	127
Corbitt S Speed Truck	1250	H-Sp 7000	3 1/2x5	19.8	L	Own	FS	Strm	V	.....	Eis	Dy	B-Li	B-Li 30	U	3	Hart	Shel	Shel 33FA500	W	Shel W1001	1/2	6	20	Ros	34x4 1/2*	34x4 1/2*	Bim	Fir	3420	130
Dodge Brothers	730	Own	3 7/8x4 1/2	24	L	MeC	FS	Stew	V	.....	NE	NE	Own	Own	U	3	Own	Own	Own	S	Own	1/2	4.16	17.4	Own	32x4*	32x4*	Kel	Kel	1992	114
Ogden A2	....	Cont N	3 1/2x5	19.6	L	Chic	FS	Zen	V	.....	Spl	.....	B-Li	B-Li 30	U	3	M-E	Tut	Tim 1250	W	Tim 6250	1/2	6.2	.....	Ros	34x5	34x5	Stn	.....	3100	125
Perfection A	1095	Cont N	3 1/2x5	19.6	L	Own	FS	Zen	V	.....	Rm	Rm	B.B.	Own AAU	U	3	Ther	Own	Tim 1216-B	B	Tim 5311	1/2	5	22.3	Lav	32x4 1/2	32x4 1/2	Bim	Mil	2500	128
Rainier R-31	1970	Cont N	3 3/4x5	22.5	L	Har	FS	Zen	V	Mon	Eis	.....	B-Li	B-Li 30	U	3	Hart	Per	Tim 1250	W	Tim 6250	1/2	6.75	22.5	Lav	35x5*	35x5*	Jon	Fir	2500	125
Republic Rapid Transit	1250	Lyco KB	3 1/2x5	19.6	L	Own	FS	Strm	V	.....	AuL	AuL	Full	.....	U	3	Spic	Math	.....	I	.....	...	5.38	15.06	Jac	33x5	33x5	Mot	Fir	2650	124
Ruggles 15	795	H-Sp. 30	3 1/2x5	19.6	L	Per	FS	Zen	G	.....	Bos	Bos	M-E	Full T	U	3	Pick	Det	Col 3000	B	Col 30000	3/4	5.12	.....	Jac	32x4 1/2	32x4 1/2	Nor	Fir	2300	122
Service 12	....	Mid 409	3 1/4x4 1/2	16.9	H	Lng	F	Strm	G	.....	Rm	Rm	Hoos	Det DY 208	U	3	M-E	Shel	Own E-1-558	B	Tim 5311	1/2	6.88	22.1	Ros	32x4 1/2*	32x4 1/2*	Bim	Fir	2720	128
Stoughton C	1095	Mid 410	3 3/8x4 1/2	18.2	H	Chic	F	Zen	V	.....	Rm	Rm	Det	Own D-21	U	3	Ther	Own	Col 5108	S	Col 52003	3/4	5.87	20	Lav	34x4 1/2*	34x4 1/2*	Roy	Gdy	2480	131
Vim 50	995	Own	4 x5	25.6	L	MeC	F	Zen	G	.....	Wes	Wes	Own	Own	U	3	MM	Shel	Own	B	Own	...	4.7	.....	Own	32x4*	32x4*	.....	Fir	2600	108
White 15	2400	Own GK	3 3/4x5 1/2	22.5	L	.....	FS	Zen	G	.....	.....	.....	Own	Own TBC	A	4	Own	.....	Own	B	Own	1/2	3.99	18.6	Own	34x5*	34x5*	.....	Fir	3225	133
Yellow Cab..M-22-¾..	1590	Cont V-4	3 3/4x5	22.5	L	Lng	FS	Zen	G	.....	Bos	.....	B-Li	.....	U	3	Spic	Math	.....	B	.....	...	4.9	16.31	Gem	33x4 1/2*	33x4 1/2*	Stn	Fir	2400	117
1 Ton																															
Acason R	....	Wau BUX	3 3/4x5 1/4	22.5	L	Can	S	Sheb	V	Wau	Eis	.....	Full	.....	U	4	Bld	Det	.....	W	.....	1/2	6.2	24.8	Ros	35x5*	35x5*	Bim	.....	3050	129
Acme 20	....	Cont N	3 3/4x5	22.5	L	GO	FS	Rayf	V	Dup	Eis	Bos	B.B.	Cott AAU	U	3	Bld	Det	Tim 1250	W	Tim 6250	1/2	6.75	27	Ros	35x5*	35x5*	Bim	.....	3050	129
Atlas 22	1495	Buda WTU	3 3/4x5 1/8	22.5	L	Own	F	Zen	G	.....	AtK	Dy	M-E	.....	U	3	Ster	IC	.....	W	.....	1/2	5.16	14.46	CAS	34x4 1/2	34x4 1/2	Sch	Fir	2850	130
Avery	....	Own 6	3 x4	21.6	L	Own	S	Strm	V	Own	KW	Wis	Own	Own	U	3	Pet	Math	Own	I	Own 2-L	D	8	26.66	Ros	34x5*	34x5*	StM	Gdy	2800	129
Bell M	1495	Buda	3 5/8x5 1/8	21	L	Chic	F	Zen	V	.....	Eis	.....	B.B.	.....	U	3	Spic	Det	.....	W	.....	...	7.2	.....	Lav	35x5	35x5	Bim	Fir	2500	126
Belmont B	1525	Buda MU	3 5/8x5 1/8	21	L	R-T	S	Zen	G	.....	Con	Dy	Full	Full LTU 5	U	3	ME	Math	Shel 510	W	Russ	3/4	5.2	15.75	Lav	35x5	35x5	Smi	Fir	2000	113
Bessemer G	1450	Cont N	3 1/2x5	19.6	L	Stn	FS	Strm	G	.....	Bos	Bj	Full	Full TU¾	U	3	Bld	Per	Shel 350	I	Torb A	D	.....	.....	Ros	35x5	35x5	Sch	Fir	3000	124
Bethlehem KN	1385	Own	3 1/2x5	19.6	L	GO	F	Zen	G	.....	Bos	GD	B.B.	Det Dy	U	3	Spic	Math	Stan 3070F	B	Stn 3070R	1/2	6.	18.8	Ros	35x5	35x5	.....	Fir	2650	125
Betz	1850	J-3	3 3/4x5 1/2	22.3	L	Chic	F	Zen	G	Mon	Bos	Bos	B-Li	B-Li 30	U	3	Pet	Mar	Tim 1250	W	Tim 6352	1/2	.....	.....	Ros	34x5	34x5	.....	Fir	3150	140
Brockway E	....	Wis SU	4 x5	25.6	H	GO	F	Zen	V	.....	Bos	LN	B-Li	B-Li 30	U	3	M-E	Row	Col 5045	S	Col 52001	F	5.13	20.5	Gem	33x5*	33x5*	.....	Fir	3450	135
Casco Model A	1785	Buda MU	3 3/4x5 1/2	22.4	L	GO	F	Zen	V	.....	Bos	Bos	Full	Full SUI	U	3	Spic	Stan	Col 5000	S	Col 52000	1/2	5.85	23.46	Woh	34x5	34x5	Arc	Fir	3100	130
Chevrolet T	1095	Own	3 11/16x5 1/4	21.7	H	Har	FS	Zen	G	Mon	Rm	AuL	Own	.....	...	3	.....	Arm	.....	W	.....	1/2	7	24.67	M-P	33x4*	35x5*	Hay	Jax	2840	125
Clydesdale 10	1485	Cont N	3 3/4x5	22.5	L	Own	FS	Zen	V	.....	Bos	Bos	B.B.	.....	U	3	Spic	Stan	.....	B	.....	1/2	6.1	20.3	Ros	34x5	34x5	.....	Fir	3100	138
Clydesdale 10A	1535	Cont N	3 3/4x5	22.5	L	Own	FS	Zen	V	.....	Bos	Bos	B.B.	.....	U	3	Spic	Stan	.....	W	.....	1/2	6.75	22.5	Ros	34x5	34x5	.....	Fir	3100	138
Corbitt E-22	1480	Cont N	3 3/4x5	22.5	L	MeC	FS	Strm	V	.....	Eis	.....	B-Li	B-Li 30	U	3	Hart	Shel	Shel 33FA500	W	Shel W-1001	1/2	6	20	Ros	34x3 1/2	34x4	Bim	Fir	3730	130
Day-Elder AN	....	Buda WTU	3 3/4x5 1/8	22.5	L	Bus	F	Zen	G	.....	Eis	.....	B-Li	B-Li	U	3	Hart	Shel	Col 7018	W	Tim	1/2	6.2	20.71	Gem	34x3 1/2	34x4	Jon	Fir	3000	128
Dearborn E (Speed)	1600	Buda MU	3 5/8x5 1/8	21	L	Chic	F	Strm	V	.....	Con	Bos	Full	.....	U	3	Hart	.....	.....	W	.....	1/2	6.2	18.6	Ros	35x5*	35x5*	.....	Fir	3280	132
Defiance G	....	Cont N	3 3/4x5	22.5	L	Per	FS	Zen	V	.....	Eis	AuL	B.B.	.....	U	3	Spic	Det	.....	B	.....	...	6.14	.....	Own	35x5*	35x5*	StM	Fir	2700	128
Diehl A	....	Cont N	3 1/2x5	19.6	L	.....	FS	Zen	G	.....	Sim	.....	B.B.	Durs O2800	...	3	KB	Mar	Sals 1455E	I	Torb OX2L	D	5.3	.....	Ros	34x4 1/2*	35x5*	Sch	Fir	2400	115
D-Olt A-1	1695	H-Sp 7000	3 1/2x5	19.6	L	.....	FS	Zen	V	Opt	RBo	.....	B-Li	B-Li 30	U	3	Spic	SP	Tim 1250	W	Tim 6250	1/2	6.75	22	Ros	35x5	35x5	Day	Fir	3400	148
Dorris K-2	2490	Own	4 x5 1/2	25.6	H	Mod	F	Strm	V	.....	Bos	Wes	Own	W-Gr	U	3	Spic	Row	Tim 1250	B	Tim 5542	1/2	4.23	15.65	Ros	33x5	33x5	Mun	.....	2000	Op
Eugol	1795	Buda WTU	3 3/4x5 1/8	22.5	L	Chic	F	Strm	V	.....	Wes	Wis	W-Gr	.....	U	3	Pet	Math	.....	W	.....	1/2	6.25	30.3	Ros	34x5*	34x5*	Bim	Fir	3500	135
Federal R-2	....	Cont J-4	3 3/4x5	22.5	L	Own	F	Zen	V	.....	Eis	Rm	B.B.	Det	U	3	Pet	.....	Tim 1250	W	Tim 6250	1/2	5.6	17.4	Gem	33x5	33x5†	.....	.....	2950	132
Ford T	380	Own	3 3/4x4	22.5	L	Own	S	.....	G	.....	Own	.....	Own	Own	U	2	Own	Own	Own	W	Own	1/2	Op	19.9	Own	30x3 1/2*	32x4 1/2	.....	.....	1520	124
Fulton A	1495	H-Sp 7000	3 1/2x5	19.6	L	Liv	FS	Cart	G	.....	Sim	Wis	B.B.	Durs O2500B	U	3	Spic	Row	Col 5038	B	Col 51002	...	6.8	.....	Lav	35x5	35x5	Hoo	Fir	2800	130
Garford 15	1590	Buda MU	3 5/8x5 1/8	21	L	Lng	F	Strm	G	.....	AtK	AtK	.....	Own	U	3	Spic	Per	Tim	W	Tim 6250	1/2	6.25	.....	Gem	34x5*	34x5	.....	.....	3500	132
Gary F	1775	Buda WU	3 3/4x5 1/8	22.5	L	Chic	S	Zen	V	Pier	Eis	.....	Full	.....	U	3	Hart	Tut	.....	W	.....	1/2	.....	.....	Ros	36x3 1/2	36x4	Pru	.....	3400	130
G.M.C. K-16	....	Own	3 1/2x5 1/2	19.6	L	Own	F	Mar	G	Own	Eis	Own	Own	Own	U	3	UM	Det	Own	B	Own	3/4	6	21.9	Own	34x5*	34x5*	Kel	.....	3250	132
Graham Brothers B	1265	Dodge	3 7/16x4 1/2	24	L	MeC	FS	Stew	V	.....	NE	NE	Dod	Dod	U	3	UP	Det	Dod	S	Own B-360	1/2	6.28	29.29	Dod	33x4 1/2*	34x5*	.....	.....	2550	140
Gramm-Pioneer 10-SpT	1245	Lyco CT	3 3/4x5	22.5	L	Own	FS	Strm	G	.....	Con	AuL	B.B.	.....	U	3	Own	Per	Sals	B	Sals 1483	3/4	5.75	26	Ros	33x5*	33x5*	Day	Fir	2370	...
Hal-Fur D	2000	Hin HA 400	4 x5 1/2	25.6	L	GO	F	Zen	V	Hin	Bos	Wis	B.B.	.....	A	4	Pet	Per	.....	W	.....	1/2	5.5	24	Gem	35x5*	36x6	Stn	Fir	3400	Op
Hawkeye	1375	Buda WTU	3 3/4x5 1/8	22.5	L	.....	F	Zen	G	.....	Eis	.....	Full	.....	U	3	.....	Det	.....	I	Clark	D	6.25	18.75	Ros	34x5	34x5	Day	Fir	3250	136
Independent B (Iowa)	1665	Cont N	3 1/2x5	19.6	L	GC	FS	Strm	V	.....	Bos	.....	Full	.....	U	3	Bld	GC	.....	...	.....	D	.....	.....	Lav	34x3	34x4	StM	Fir	3480	135

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TRADE NAME AND MODEL	Chassis Price	ENGINE DETAILS: Make and Model Number (4 cylinder unless otherwise noted.)	Bore and Stroke	N.A.C.C. Horsepower	Valve Arrange't	Radiator (Make)	Lubrication	Carburetor	Fuel Feed	Governor (Make)	Ignition System	Engine Starter	Clutch (Make)	GEARSET: Make and Model Number	Location	Speeds	Universal (Make)	Springs (Make)	FRONT AXLE and Model Number	REAR AXLE: Final Drive	Make and Model Number	Type	Total Gear Reduction in High	Total Gear Reduction in Low	Steering Gear (Make)	TIRES, WHEELS, RIMS: *Pneumatic †Dual ‡Solid — Front	Rear	Wheels (Make)	Rim Equipment	Chassis Weight (Stripped)	Wheelbase
		1			2	3	4	5	6	7	8	9	10	11	12		13	14	15	16	17	18			19			20	21		
1½ Ton—Con'd																															
Defiance D.	....	Cont N	3¾x5	22.5	L	Per	F	Zen	V	.....	Eis	AuL	B.B.	.....	U	3	Spic	Det	.....	I	.....	D	8.1	21	Own	35x5*	36x6*	StM	Fir	3200	140
Diamond T-Farm Spec.	2525	Hin	3¾x5¼	22.5	L	GO	F	Strm	V	Own	Bos	.....	Covt	.....	U	3	Spic	Math	.....	W	.....	½	8.2	29.9	Gem	36x3½	36x5	.....	.....	5100	144
Diamond T-T.	2250	Hin	3¾x5¼	22.5	L	GO	F	Strm	V	Own	Bos	.....	Covt	.....	U	3	Spic	Math	.....	W	Own	½	18.2	29.9	Gem	36x3½	36x5	.....	.....	4150	144
Diehl B.	....	H-Sp 7000	3½x5	19.6	L	....	FS	Zen	G	.....	Bos	.....	M-E	Durs 02500B	...	3	M-E	Row	Sals 1544E	I	Torb S 327	D	5.3	.....	Ros	.....	.....	Way	.....	2500	120
Dixon.	2650	Cont J-4	3¾x5	22.5	L	GO	F	Zen	G	Pier	Bos	.....	Full	Full	U	4	Hart	SP	.....	W	Tim	F	Opt	Opt	Ros	36x3	36x6	StM	.....	4300	145
D-Olt AA.	2450	H-Sp 7000	3½x5	19.6	L	GO	S	Zen	V	Dup	RBo	.....	B-Li	B-Li 20	U	4	Spic	SP	Tim 1250	W	Tim 6250	½	7.75	37.2	Ros	34x4	34x5	.....	.....	4000	168
Douglas G.	1750	Buda WU	3¾x5½	22.5	L	Own	P	Sheb	V	.....	Eis	.....	Full	.....	U	3	.....	Own	.....	I	.....	D	8	23.1	Ros	34x3½	34x5	Own	Fir	3725	129
Douglas GW.	1750	Wei	3¾x5½	22.5	H	Own	F	Sheb	V	.....	Eis	.....	B.B.	.....	U	3	.....	Own	.....	I	.....	D	8	23.1	Ros	34x3½	34x5	Own	Fir	3725	126
Federal S-21.	....	Cont J-4	3¾x5	22.5	L	Own	F	Zen	V	Phar	Eis	Rm	B.B.	Own	A	3	Pet	.....	Own	W	Tim 6352	½	7.2	20.65	Gem	36x3½	36x5	.....	.....	3900	144
Federal S-22.	....	Cont J-4	3¾x5	22.5	L	Own	F	Zen	V	.....	Eis	Rm	B.B.	Own	A	3	Pet	.....	Own	W	Tim 6352	½	7.2	20.65	Gem	34x5*	36x6*	.....	.....	3900	144
Front Drive C.	2800	Buda CTU	3¾x5½	22.5	L	EM	S	Zen	G	Pier	Spl	Opt	B.B.	Own FP	A	3	Own	Own	Own F	W	Own FR	½	8	32	Lav	34x5	34x5	Stn	.....	3200	Op
Garford 25 B.	2190	Buda WU	3¾x5½	22.5	L	Own	S	Strm	V	.....	Spl	.....	.....	Own	A	3	Spic	Per	Own	W	Tim 6460	½	7.75	.....	Ros	36x3½	36x5	.....	.....	4000	135
Graham Bros.	1325	Dodge	3 7/16x4½	24.1	L	McC	FS	Stew	V	.....	NE	NE	Dod	Dod	U	3	Own	Det	Dod	S	Own B-360	½	6.28	29.29	Dod	33x4½*	36x6	.....	.....	2625	140
Gramm-Pioneer 15	1750	Cont N	3¾x5	22.5	L	Own	FS	Strm	G	.....	NE	NE	Full	Full	U	3	Own	Per	Col	W	Clark 10	D	7.6	30.4	Ros	36x3½	36x5	Bim	Fir	3660	...
Gramm-Pioneer 65.	2250	Cont N	3¾x5	22.5	L	Own	FS	Strm	G	.....	NF	NE	Full	Own	A	3	Own	Per	Col	I	Clark 10	D	7.8	28	Ros	36x3½	36x5	Bim	Fir	3860	...
G. W. W. Farm Spec.	1585	Wei	3¾x5½	22.5	H	Chic	F	Sheb	G	.....	Del	Del	Full	Full TU 3	U	3	Acm	GC	Shul 350	I	Clark 10	D	7	.....	Woh	35x5	35x5	Roy	Fir	3200	142
Hug.	1350	Buda WTU	3¾x5½	22.5	L	Per	F	Zen	G	.....	Bos	.....	Full	Full SU 1	U	3	Bld	Tut	Col 5000	B	Clark BSpec	½	5.5	26.62	Ros	34x5	34x5	Stn	Fir	2900	118
Independent G (Iowa).	2040	Cont J	3¾x5	22.5	L	GO	FS	Strm	V	.....	Bos	.....	Full	.....	U	3	Bld	GC	.....	I	.....	D	8.2	.....	Lav	34x3½	34x5	StM	Fir	3875	142
Indiana 12.	....	Wau BUX	3¾x5¼	22.5	L	McC	F	Strm	G	.....	Eis	.....	B.B.	B-Li 35	A	3	Spic	Shel	Shel 33FA500	W	Shel W-1501	½	7.8	31.2	Woh	34x3½	34x6	Bim	.....	4100	146
International 31.	1650	Own	3½x5¼	19.6	L	Own	FS	Ens	G	Own	Bos	Own	Own	.....	A	3	Own	.....	.....	I	.....	D	8	26.5	Own	.....	.....	Own	.....	3200	128
Kalamazoo GI.	2100	Cont N	3¾x5	22.5	L	GO	FS	Strm	V	Pier	Eis	Dy	Full	Full	A	4	Bld	Shel	Shul 510	W	Wig	½	8.5	40.8	Ros	34x4	34x5	Bim	.....	4450	144
Kalamazoo LG.	2775	Her O	4 x5	25.6	H	GO	F	Strm	V	Pier	Sim	Sim	Full	Full	A	4	Bld	Shel	Shel 0343	W	Shel	½	8.6	40.8	Ros	36x4	36x7	Smi	.....	5080	144
Kearns N.	1650	H-Sp 7000	3½x5	19.6	L	Own	FS	Zen	V	.....	Bos	Dy	Full	.....	U	3	M-E	Shel	.....	I	.....	½	7.6	30	Lav	34x4	34x6	.....	Fir	3000	136
Kelly-Springfield K34	2700	Own	3¾x5½	22.5	L	Lng	F	Zen	G	Pier	Eis	Del	B.B.	.....	A	3	Pet	Per	.....	W	.....	½	8.5	31.2	Gem	36x3½	36x6	StM	.....	4670	Op
Kenworth.	3100	Buda ITU	4 x5½	25.6	L	Idl	F	Strm	V	Mon	Bos	.....	B.B.	.....	U	3	Bld	Tut	.....	W	.....	½	7.7	31	Ros	36x3½	36x6	Jon	.....	4620	142
Kissel General Utility.	1975	Own 40000	3 7/16x5½	24.1	L	McC	S	Strm	V	Pier	Eis	.....	W-Gr	.....	U	3	Spic	Math	.....	W	.....	½	7.8	28.5	Jac	34x3½	34x5	Pru	3656	4100	152
Kleiber A.	....	Cont K-4	4 1/16x5¼	27.2	L	Per	FS	Strm	G	Sim	Bos	.....	.....	.....	A	4	Spic	.....	.....	W	.....	½	7.1	37.51	Ros	36x3½	36x6	Smi	.....	5200	143
Larrabee.	2400	Cont J-4	3¾x5	22.5	L	R-T	F	Zen	G	Phar	Bos	.....	B-Li	B-Li 30	U	3	Spic	Shel	Shel 33FA500	W	Shel W-1501	½	7.66	31.4	Gem	34x3½	34x5	Hoo	.....	4500	138
Luedinghaus W.	2490	Wau BUX	3¾x5¼	22.5	L	Own	FS	Sheb	G	Wau	Spl	.....	B.B.	.....	U	3	Spic	Tut	.....	W	.....	½	8.6	26.6	Lav	34x3½	34x5	StM	.....	4100	144
Maccar L2	....	Cont K4	4 1/16x5¼	27.2	L	Own	F	Strm	V	Pier	Eis	Bos	B-Li	B-Li 35	U	4	Spic	Mer	Tim 1520	W	Tim 6460	½	8.75	46.81	Ros	36x4	36x6	Day	Fir	4900	150
Mack AB.	3000	Own AB	4 x5	25.6	L	Own	S	Zen	G	Own	Spl	.....	Own	.....	U	4	Spic	Mer	.....	C	.....	D	6.99	37.84	Own	36x4	36x3½†	.....	.....	4900	Op
Mack AB.	3450	Own AB	4 x5	25.6	L	Own	S	Zen	G	Own	Spl	.....	Own	.....	U	4	Spic	Mer	.....	R	.....	F	7.6	36.80	Own	36x4	36x3½†	.....	.....	5300	Op
Master JW.	2290	Buda OU	4 1/16x5½	27.2	L	Chic	S	Zen	V	McC	Eis	.....	Full	.....	U	3	Spic	Det	.....	W	.....	½	Opt	Opt	Ros	34x3½	34x6	Pru	.....	3900	142
Master JWL.	2365	Buda OU	4 1/16x5½	27.2	L	Chic	S	Zen	V	McC	Eis	.....	Full	.....	U	3	Spic	Det	.....	W	.....	½	Opt	Opt	Ros	34x3½	34x6	Pru	.....	3900	160
Master JD.	2590	Buda OU	4 1/16x5½	27.2	L	Chic	S	Zen	V	McC	Eis	.....	Full	.....	U	3	Spic	Det	.....	W	.....	½	Opt	Opt	Ros	34x3½	34x6	Wal	.....	3900	142
Master JDL.	2665	Buda OU	4 1/16x5½	27.2	L	Chic	S	Zen	V	McC	Eis	.....	Full	.....	U	3	Spic	Det	.....	W	.....	F	Opt	Opt	Ros	34x3½	34x6	Wal	.....	3900	160
Maxwell.	....	Own	3 5/16x4½	21	L	Own	FS	Stew	G	.....	AtK	Rm	Own	.....	U	3	Spic	Det	.....	W	.....	F	Opt	Opt	Ros	34x3½	34x6	Wal	.....	3900	160
Menominee H.	2475	Wis EAU	4 x5	25.6	L	Own	FS	Strm	G	Mon	Eis	Opt	Det	.....	U	3	Spic	Tut	.....	W	.....	½	7.25	34.4	Own	35x5	35x5	Kel	Fir	2385	124
Moreland BX.	1980	Her O	4 x5	25.6	L	Own	F	Zen	G	.....	AuL	AuL	B-Li	B-Li 30	U	3	Pet	US	Tim 1452	W	Tim 6461	½	8.25	30.36	Ros	36x3½	36x5	Stn	Fir	4220	144
Napoleon 11	1860	Gr-B	3½x5	19.6	H	Own	F	Scoe	G	.....	Bos	Bos	Full	Full TU¾	U	3	Bld	Math	Fli 50BA 80	I	Clark JD	D	7	28	Ros	36x3½	36x6	Smi	.....	4125	132
Nelson-LeMoon G-2	....	Cont K-4	4 1/16x5¼	27.2	L	Chic	F	Strm	G	Phar	Bos	Bos	B-Li	B-Li 35	U	3	Own	GC	Tim 1520	W	Tim 6460	½	8	24	Lav	35x5*	36x6*	Roy	Fir	3450	133
Ogden D.	....	Cont N	3¾x5	22.5	L	Chic	FS	Strm	G	Pier	Spl	.....	B-Li	.....	U	3	M-E	Tut	.....	W	.....	½	7	.....	Ros	36x4	36x6	StM	Gdy	3400	Op
O. K.	2000	Buda ITU	4 x5½	25.6	L	R-T	FS	Zen	V	Pier	Eis	.....	Full	.....	U	3	Hart	Cham	.....	W	.....	½	8.75	.....	Ros	36x3½	36x5	Stn	.....	4300	140
Paige 52-19.	1950	Hin 400	4 x5¼	25.6	L	Own	F	Strm	V	Hin	Bos	.....	B-Li	.....	A	4	Spic	Per	.....	W	.....	½	8.25	27.9	Ros	36x3½	36x5	Bim	.....	4000	140
Parker E-23.	1995	Wis SU	4 x5	25.6	L	Own	F	Strm	V	.....	Wes	Wes	B-Li	B-Li 30	U	3	Bld	Tut	Tim 1452	W	Tim 6460	½	7.7	37.51	Ros	34x5*	38x7*	Own	Fir	3700	140
Power F.	3275	Hin HA 400	4 x5¼	25.6	L	GO	F	Zen	G	Hin	Eis	Wes	Full	.....	U	4	.....	Row	.....	W	.....	F	7.1	28.7	Lav	34x3½	34x6	Bim	.....	5300	150
Premocar.	2350	Lyco K	3½x5	19.6	L	....	S	Zen	V	.....	Del	Dy	B.B.	.....	U	3	Spic	Shel	.....	W	.....	½	7.75	37.2	Ros	36x5	36x7	StM	Fir	4200	130
Rainier R36.	2490	Cont J-4	3¾x5	22.5	L	EM	F	Zen	V	Pier	Eis	.....	B-Li	B-Li 30	U	3	Spic	Per	Tim 1520	W	Tim 6460	½	7	.....	Ros	36x6	36x6	.....	.....	3900	147
Reliance 10A.	2400	Buda ITU	4 x5½	25.6	L	Bus	FS	Strm	G	Pier	Eis	.....	Full	.....	U	3	Spic	Per	Tim 1520	W	Tim 6460	½	7.75	25.8	Ros	34x3½	34x5	Jon	.....	4500	150
Republic 11X.	1795	Cont N	3¾x5	22.5	L	Own	FS	Strm	G	.....	Bos	.....	Full	.....	U	3	Pet	Shel	.....	P	.....	½	.....	.....	Ros	36x3½	36x5	Bim	Gdy	4500	150
Reliance 10A.	2400	Buda ITU	4 x5½	25.6	L	Bus	FS	Strm	G	Pier	Eis	.....	Full	.....	U	3	Spic	Math	.....	I	.....	D	8	18.84	Jac	34x3½	34x6	Nor	Fir	3656	144
Republic 11X.	1795	Cont N	3¾x5	22.5	L	Own	FS	Strm	G	.....	Bos	.....	Full	.....	U	3	Spic	Math	.....	P	.....	½	.....	.....	Ros	36x3½	36x5	Bim	Gdy	4500	150
Rowe CW.	3000	Wis CAU	3¾x5	22.5	L	Fed	F	Zen	G	Sim	Bos	.....	B-Li	B-Li 35	U	4	Spic	Shel	Shel 33FA500	W	Shel W-1501	½	6.5	26	Ros	36x6*	36x6*	Hoo	.....	3800	133
Rumely A.	2150	Buda CTU	3¾x5¼	22.5	L	Mod	F	Strm	G	Pier	Spl	.....	Full	Full LTU 5	U	3	Bld	Math	Shul 510	W	Shul 1501-W	½	7.8	31.2	Gem	36x3½	36x5	Mot	Gdy	4100	144
Sandow.	1895	.....	3¾x5	22.5	L	Chic	FS	Strm	V	.....	Eis	.....	Full	.....	U	3	Spic	.....	.....	W	.....	½	7.75	.....	Ros	.....	.....	Opt	Fir	3495	138
Sanford W-10.	....	Cont 8-R	3 5/16x4½	27.3	L	R-T	F	Strm	G	.....	Con	Dy	B.B.	B-Li 30	U	3	Spic	Shel	SalsD	B	Sals D	¾	7.75	23.5	Gem	33x5*	33x5*	.....	Fir	....	140
Sanford W-15.	....	Cont N	3¾x5	22.5	L	R-T	S	Strm	V	.....	Con	Dy	B-Li	B-Li 30	U	3	Spic	Shel	Shel 33FA500	W	Shel 1501	½	6.5	26.67	Ros	36x6	36x6	.....	Fir	3800	140
Schacht.	2500	Wis SU	4 x5	25.6	H	Own	F	Zen	V	.....	Apo	.....	Full	Full	U	4	Bld	Shel	.....	R	Wis	½	7.	33.6	Ros	36x3½	36x7	.....	.....	4400	144
Selden Unit 30.	2250	Cont N	3¾x5	22.5	L	Lng	FS	Strm	G	Pier	Eis	.....	B-Li	.....	U	3	Spic	Per	.....	W	.....	½	7	23.31	Lav	34x3½	34x5	Arc	.....	3560	137
Service 21.	....	Buda RU	3¾x5½	22.5	L	Lng	FS	Strm	V	.....	Eis	.....	Full	Full TU¾	U	3	M-E	Shel	Tim 1520	W	Tim 6456	½	7.75	23.25	Ros	34x3½	34x5	Bim	.....	3450	137
Signal H.	....	Cont C-4	4 1/16x5¼	27.2	L	R-T	FS	Strm	G	Sim	Eis	.....	B-Li	.....	A	4	Spic	Shel	.....	W	.....	½	7.75	31	Ros	34x4	36x6	StM	.....	4760	146
Standard 1½K.	1695	Cont N	3¾x5	22.5	L	Lng	F	Strm	V	.....	Eis	.....	B-Li	.....	U	3	Spic	Shel	.....	W	.....	½	7.2	31.3	Ros	34x3½	34x5	.....	.....	3466	134
Sterling.	2885	Own	4 x5¾	25.6	L	Own	F	Zen	V	Wau	Eis	.....	B-Li	B-Li 35	U	4	Spic	Am	Tim 1452	W	Tim 6352	½	7	37.45	Ros	36x3½	36x5	Pru	.....	4750	142
Stewart 9.	....	Cont N	3¾x5	22.5	L	Bus	FS	Zen	G	.....	Eis	.....	B-Li	B-Li 30	U	3	Hart	Det	Tim 1450	W	Tim 6460	½	7.6	22.8	Gem	34x3½†	34x6	Way	Fir	3440	140
Stoughton B.	2150	Wau BUX	3¾x5¼	22.5	L	Own	FS	Strm	G	Wau	Eis	.....	B-Li	B-Li 30	U	3	Ther	Own	Shel 33FA500	W	Shel W-1501	½	7.8	32	Lav	36x3½	36x5	Smi	.....	3800	140
Tiffin GW.	2100	Cont C-4	4 1/16x5¼	27.2	L	Own	FS	Sheb	G	Pier	Bos	Wes	Full	Full TU3	U	3	Pet	Vul	Shel D-343	W	Shel W-103	½	7.7	23.25	Ros	36x3½	36x5	Bim	Fir	3750	135
Tower J.	1785	Cont K4	4 1/16x5¼	27.2	L	Own	S	Zen	G	.....	Eis	.....	Full	Full LTU5	U	3	Bld	Det	Tim 1452	W	Tim 6460	½	7.25	29	Ros	35x5*	38x7*	Pru	Fir	4520	142
Traffic Speedboy.	1595	Cont N-4	3¾x5	22.5	L	Own	FS	Cart	G	.....	Bos	GD	Covt	Covt MUNC	U	3	Ther	Det	Own	I	Russ 3000-I	D	6.15	22.5	Own	35x5*	35x5*	Day	Fir	3400	128
Transport 25.	.....	Buda WU	3¾x5½	22.5	L	Mod	F	Strm	V	.....	Eis	Opt	Full	.....	U	3	Sned	Det	.....	I	.....	F	7.25	21.75	Jac	34x3½	34x5	Mot	.....	3700	130
Traylor B.	2390	Buda WU	3¾x5½	22.5	L	GO	F	Zen	G	Sim	Spl	.....	Covt	Covt MOSE	U	3	M-E	Mer	Shel 33FA500	W	Shel W-1501	½	.8	.....	Ros	34x3½	34x6	Sch	.....	4000	140
Triangle A.	1985	Wau BUX	3¾x5¼	22.5	L	Per	FS	Strm	G	Wau	Eis	.....	Full	Full LTU5	U	3	UP	Det	Col 7007	I	Clark 1-D	D	7.25	29	Gem	34x3½	34x6	Roy	Fir	3750	144
Triumph.	1950	Buda MU	3 5/16x5½	21	L	Mod	F	King	V	Pier	Spl	.....	A.B.	B-Li 35	U	4	UP	Tut	.....	W	.....	½	7.25	.....	Lav	36x3½	36x5	Stn	.....	132	
Ultimate A.	3150	Buda ITU	4 x5½	25.6	L	Own	F	Strm	G	Pier	Eis	Bos	B-Li	.....	U	4	Spic	Shel	Shel D-370	W	Shel W-103	½	6.5	37.4	Ros	36x3½	36x6	Jon	Fir	4500	140
United Express.	1445	Her O	4 x5	25.6	L	Per	FS	Zen	G	.....	Bos	Bos	B-Li	B-Li	U	3	Spic	.....	.....	B	Col	¾	5.1	20.86	Lav	34x5	34x5	.....	Fir	3050	148
U. S. N.	1775	Cont N	3¾x5	22.5	L	Lng	FS	Strm	V	.....	Eis	Opt	Full	Full LTU 4	U	3	Opt	Shel	Shul 350	I	Clark ID	D	7.6	25.3	Lav	36x3½	36x5	Sch	.....	3800	144

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TRADE NAME AND MODEL	Chassis Price	ENGINE DETAILS: Make and Model Number (4 cylinder unless otherwise noted.)	Bore and Stroke	N.A.C.C. Horsepower	Valve Arrange't	Radiator (Make)	Lubrication	Carburetor	Fuel Feed	Governor (Make)	Ignition System	Engine Starter	Clutch (Make)	GEARSET: Make and Model Number	Location	Speeds	Universal (Make)	Springs (Make)	FRONT AXLE and Model Number	REAR AXLE: Final Drive	Make and Model Number	Type	Total Gear Reduction in High	Total Gear Reduction in Low	Steering Gear (Make)	TIRES, WHEELS, RIMS: *Pneumatic †Dual ‡Solid — Front	Rear	Wheels (Make)	Rim Equipment	Chassis Weight (Stripped)	Wheelbase
		1			2	3	4	5	6	7	8	9	10	11	12		13	14	15	16	17	18			19			20	21		
2 Ton—Con'd																															
Traylor C.	2850	Buda ITU	4 x5½	25.6	L	GO	F	Zen	G	Pier	Spl	.....	Covt	Covt MOSE	U	3	M-E	Mer	Shel D-343	W	Shel W-103	½	7.75	.....	Ros	36x4	36x7	Sch	.....	5100	146
Triangle C.	2285	Wau BUX	3¾x5½	22.5	L	Per	FS	Strm	G	Wau	Eis	.....	Full	Full LTU5	U	3	UP	Det	Torb CC3B	I	Clark 2D	D	9.1	36	Gem	36x4	36x7	Roy	Fir	4200	147
Triumph 2	2550	Buda CTU	3¾x5½	22.5	L	Mod	F	King	V	Pier	Spl	.....	B.B.	.....	U	4	UP	Tut	.....	W	.....	½	7.75	40.3	Lav	36x4	36x7	Stn	.....	5000	144
Twin City.	2400	Buda ITU	4 x5½	25.6	L	Spli	F	Sheb	V	Sim	Bos	.....	Full	Full GU7	U	4	.....	Math	Shul 550	I	Clark 2D	D	8	32	Ros	36x6	40x8	Bim	Fir	4800	150
Ultimate AJ	3200	Buda HTU	4¼x5½	28.9	L	Own	F	Strm	G	Pier	Eis	Bos	B-Li	B-Li 35	U	4	Spic	Shel	Shel D-370	W	Shel W-103	½	6.5	34.7	Ros	35x5*	38x7*	Jon	Fir	4500	140
Ultimate AJL	3250	Buda HTU	4¼x5½	28.9	L	Own	F	Strm	G	Pier	Eis	Bos	B-Li	B-Li 35	U	4	Spic	Shel	Shel D-370	W	Shel W-103	½	6.5	34.7	Ros	35x5*	38x7*	Jon	Fir	4590	156
United 35.	1595	Her	4 x5	25.6	L	Per	FS	Zen	G	.....	Bos	.....	B-Li	B-Li	U	3	Spic	.....	.....	R	Wis	½	7	28.6	Lav	34x5	34x6	.....	.....	4300	144
U. S.-NW 23.	2175	Buda WTU	3¾x5½	22.5	L	Lng	FS	Strm	V	.....	Bos	Opt	Full	Full LTU 5	U	3	Opt	Shel	Shul 350	W	Shel W-103	½	7.8	25.97	Lav	36x4	36x6	Sch	.....	4300	144
Walker-Johnson A.	2500	Buda WU	3¾x5½	22.5	L	Bus	F	Zen	V	.....	Eis	.....	Full	.....	U	3	Spic	SP	.....	W	.....	½	7.75	.....	Ros	34x3½	34x6	Jon	.....	4150	140
Walter N.	3500	Own FU	4 x5¾	25.6	L	Bus	F	Strm	G	Pier	Eis	Wes	B-Li	.....	A	4	Own	.....	.....	F	.....	F	7.25	39	Gem	36x4	36x7	.....	.....	5500	144
White 20.	3250	Own GK	3¾x5⅛	22.5	L	.....	FS	Zen	G	.....	.....	.....	Own	Own TBC	A	4	Own	.....	Own	R	Own	½	6.89	32.1	Own	36x4	36x7	.....	.....	4815	168
Wichita M	2400	Wau BX	3¾x5¼	22.5	L	.....	F	Strm	G	Wau	Wag	.....	Own	.....	A	4	Own	Det	.....	W	.....	½	8.6	45.03	Ros	36x3½	36x6	Bim	Fir	4400	144
Wisconsin (Loganville).	1450	H-Sp 7000	3½x5	19.6	L	.....	FS	Strm	V	.....	Bos	Dy	B.B.	.....	U	3	UP	Har	.....	I	.....	D	8	.....	Lav	34x5*	36x6	.....	.....	3200	136
Witt Will P.	2900	Cont K-4	4⅛x5¼	27.2	H	Own	FS	Zen	G	Pier	Eis	.....	B-Li	B-Li 54	U	3	Spic	Del	Tim 1540	W	Tim 6560	F	8.5	.....	Ros	36x4	36x8	Arc	Fir	5000	144
2½ Ton																															
Acason H.	....	Wau CU	4⅜x5¾	30.6	L	Can	FS	Sheb	V	Wau	Eis	.....	Det	.....	A	4	Bld	Det	.....	W	.....	F	7.75	40.3	Ros	36x4	36x8	Sch	Opt	5400	150
Acme 60.	....	Cont K-4	4⅛x5¼	27.2	L	GO	FS	Rayf	V	Dup	Eis	Del	B.B.	Cott RU	U	4	Bld	Det	Tim 1540B	W	Tim 6560	F	9.25	48.10	Ros	36x4	36x7	Bim	.....	4830	152
American.	3350	Wis	4 x6	25.6	L	GO	F	Strm	G	Pier	Apo	.....	Det	Cott R-4	U	4	Acm	SP	Sav 20-O	W	Thom H	F	8.33	.....	Ros	36x4	36x4†	Ind	.....	5000	158
Armleder HWB	3150	Buda HTU	4¼x5½	28.9	L	Lng	F	Zen	G	Phar	Bos	Wes	B-Li	B-Li 50	U	4	Spic	Math	Tim 1542	W	Tim 6560	F	9.25	49.5	Ros	36x4	36x7	StM	.....	5000	148
Armleder HWC	.....	Cont C-4	4⅛x5¼	27.2	L	Lng	S	Zen	G	Phar	Bos	Wes	B-Li	B-Li 50	U	4	Spic	Math	Tim 1542	W	Tim 6560	F	9.25	49.5	Ros	36x4	36x7	StM	.....	5000	148
Atco A.	.....	Buda	4¼x5½	28.9	L	Chic	F	Strm	G	Pier	Eis	.....	Full	.....	A	4	Hart	Shel	.....	W	.....	.....	8.7	41.6	Ros	36x4	36x7	Smi	.....	4900	150
Atterbury 22C Std.	3375	Cont K-4	4⅛x5¼	27.2	L	Own	F	Zen	V	Pier	Eis	.....	B-L	B-Li 51	A	4	Spic	SP	Tim 1542B	W	Tim 6560	F	9.25	49.48	Gem	36x4	36x4†	Arc	Fir	5670	156
Atterbury 22C LWB.	3475	Cont K-4	4⅛x5¼	27.2	L	Own	F	Zen	V	Pier	Eis	.....	B-Li	B-Li 51	A	4	Spic	SP	Tim 1542B	W	Tim 6560	F	9.25	49.48	Gem	36x4	36x4†	Arc	Fir	5670	180
Available H.	3160	Her O.	4 x5⅛	25.6	L	Chic	FS	Zen	V	Pier	Bos	.....	B-Li	B-Li 35	A	4	M-E	Tut	Tim	W	Tim 6560	F	8.5	40.3	Ros	36x4	36x8	Sch	.....	4750	152
Bell O.	2550	Buda	4¼x5½	28.9	L	Chic	F	Strm	V	Dup	Eis	.....	B.B.	.....	U	3	UP	Det	.....	I	.....	D	8	38.4	Gem	34x4	34x7	Bim	Fir	4200	146
Bessemer J2.	2895	Cont C-2	4⅛x5¼	27.2	L	Stn	FS	Strm	G	Pier	Bos	.....	B.B.	B-Li 50	A	4	Bld	Per	Shul 510	R	LM 7250	½	....	.....	Ros	36x4	36x4†	Sch	Fir	4800	158
Betz	2985	D-3	4¼x5½	29	L	Chic	F	Zen	G	Mon	Bos	.....	B-Li	B-Li 35	U	4	Pet	Mar	Tim 1540B	W	Tim 6560	F	....	.....	Ros	36x4	36x8	Stn	.....	5250	160
Bridgeport B.	2990	Buda HTU	4¼x5½	28.9	L	Own	FS	Strm	G	Pier	Eis	.....	B.B.	.....	U	4	Hart	Per	.....	W	.....	F	8.25	.....	Ros	36x4	36x4†	Jon	Fir	5500	156
Brinton D.	2975	Cont C-4	4⅛x5¼	27.2	L	Chic	F	Strm	G	Pier	Bos	.....	B-Li	.....	U	3	Spic	Tut	.....	W	.....	F	....	33.6	Ros	36x4	36x8	Smi	.....	4900	150
Brockway K.	....	Cont K-4	4⅛x5¼	27.2	L	Bus	F	Strm	V	Phar	Eis	.....	B-Li	B-Li 35	A	4	Spic	Mer	Tim 1542	W	Tim 6560	F	7.75	41.5	Gem	36x4	36x8	Hoo	.....	5260	153
Brown—Model B.	....	Buda ETU	4¼x5½	28.9	L	S.J.	F	Strm	V	Dup	Spl	.....	B.B.	Cott RU	U	4	Spic	Math	Torb CC 2B	R	Wis 900C	...	8.32	43.3	Ros	36x6	40x8	Nor	Fir	4600	145
Federal Light Duty.	....	Cont K-4	4⅛x5¼	27.2	L	Own	F	Zen	V	Phar	Eis	Rm	B.B.	Det	A	4	Spic	.....	Own	W	Tim 6560	F	8.5	50.15	Gem	36x4	36x4†	.....	.....	5000	121
Chicago C.	....	Her O	4 x5	25.6	L	Brm	F	Strm	G	Sim	Bos	.....	B-Li	B-Li 35-4	U	4	Pet	Math	Tim 1542	R	Huck 25	F	7.36	34	Gem	36x4	36x7†	Opt	Stn	5200	156
Clydesdale 8.	2650	Cont K4	4⅛x5¼	22.5	L	Own	F	Zen	V	Own	Bos	.....	B-Li	.....	A	4	Spic	Stan	.....	W	.....	F	8.45	37.4	Ros	36x4	36x7	.....	.....	4900	156
Commerce 25B.	2970	Cont K-4	4⅛x5¼	27.2	L	Lng	F	Zen	V	.....	Eis	Bj	B-Li	B-Li	A	4	Spic	Am	.....	W	Tim	F	7.75	41.46	Ros	36x6	40x8	Bim	Fir	5200	156
Concord B.	3600	Buda HTU	4¼x5½	28.9	L	Bus	F	Zen	G	Mon	Eis	.....	B-Li	.....	U	4	Spic	Per	.....	W	.....	F	9.25	37	Ros	36x4	36x8	Arc	Fir	5450	150
Corbitt B-22.	3000	Cont K-4	4⅛x5¼	27.2	L	McC	FS	Strm	V	Sim	Eis	.....	B-Li	B-Li 50	U	4	Hart	Shel	Shel 3FA10	W	Shel W-21	½	8.75	35	Ros	36x4	36x7	Bim	Fir	5325	152
Day Elder,CN.	....	Buda HTU	4¼x5½	28.9	L	Bus	F	Zen	G	Mon	Eis	.....	B-Li	B-Li	U	4	Hart	Shel	Shel D-343	W	Tim	F	8.5	45.48	Gem	36x4	36x8	Jon	Fir	4600	150
Dependable D.	2650	Buda ITU	4 x5½	25.6	L	Lng	F	Zen	V	Mon	Spl	AuL	Full	Full TU4	U	3	Acm	Per	Shul 350	W	Wis 800	½	8.5	35.75	Ros	36x4	36x7	Bim	Fir	5300	144
Diamond TU–2.	2650	Hin	4 x5¼	25.6	L	GO	F	Strm	V	Own	Bos	.....	Covt	.....	U	4	Spic	Math	.....	W	.....	F	7.8	36.81	Gem	36x4	36x8	.....	.....	5250	160
Dixon.	3250	Cont K-4	4⅛x5¼	27.2	L	GO	F	Zen	G	Pier	Bos	.....	Full	Full	U	4	Hart	SP	.....	W	Tim	F	Opt	Opt	Ros	36x4	36x8	Smi	.....	5800	154
D-Olt C.	3250	Mid 402	4⅛x5¼	27.2	H	GO	F	Zen	G	Dup	RBo	.....	B-Li	.....	A	4	Spic	SP	.....	W	.....	.....	8.5	.....	Ros	36x5	36x4†	.....	.....	5350	168
Facto.	2545	Buda EBU	4¼x5½	28.9	L	Bus	FS	Zen	V	Pier	Spl	.....	Full	.....	A	4	Bld	SP	.....	W	.....	F	7.75	33.9	Ros	36x4	34x4	Smi	Fir	5800	155
Federal U-2.	....	Cont K-4	4⅛x5¼	27.2	L	Own	F	Zen	V	Phar	Eis	Rm	B.B.	Det	A	4	Spic	.....	Own	W	Tim 6560	F	7.75	45.6	Gem	36x4	36x4†	.....	.....	5300	157
Garford 70 H.	2750	Buda HTU	4¼x5½	28.9	L	Own	F	Strm	G	Sim	Spl	.....	.....	Owu	A	4	Spic	Per	Tim 1542B	W	Tim 6560	F	7.75	.....	Ros	36x4	36x8	.....	.....	5300	144
Gary J	2850	Buda HTU	4¼x5½	28.9	L	Chic	FS	Zen	V	McC	Eis	.....	Full	.....	A	4	Spic	Math	.....	W	.....	F	8.5	41	Ros	36x4	36x7	Pru	Gdy	5500	148
Giant 16.	3150	Cont C-4	4⅛x5¼	27.2	L	Own	FS	Sheb	G	Mon	Eis	.....	B-Li	B-Li 35	U	3	Spic	Math	Tim 1540B	W	Tim 6560	F	8.8	29.9	Ros	36x4	36x7	Way	.....	4500	168
Giant 16.	3050	Cont C-4	4⅛x5¼	27.2	L	Own	FS	Sheb	G	Mon	Eis	.....	B-Li	B-Li 35	U	3	Spic	Math	Tim 1540B	W	Tim 6560	F	8.8	29.9	Ros	36x4	36x7	Way	.....	4500	144
Hal-Fur B.	3000	Hin HA 500	4¼x5½	28.9	L	GO	F	Zen	V	Hin	Bos	Wes	B.B.	.....	A	4	Pet	Per	.....	W	.....	F	7.75	57.4	Gem	36x6	Opt	Smi	Fir	5000	Op
Hall.	....	Cont C-4	4⅛x5¼	27.2	L	Own	FS	Zen	G	Dup	Bos	.....	B-Li	.....	U	3	Opt	Det	.....	W	.....	F	7.7	.....	Gem	36x4	36x4	Smi	.....	4525	156
Harvey WFB.	2950	Buda ETU	4¼x5½	28.9	L	Own	F	Strm	G	McC	Spl	.....	Full	B-Li 50	A	4	Spic	Shel	Shel D-370	W	Shel W-103	½	7.75	37.5	Ros	36x4	36x7	StM	.....	5600	160
Hendrickson N.	3200	Buda ETU	4¼x5½	28.9	L	Chic	F	Strm	G	McC	Spl	.....	Full	Full G-7	A	4	Ther	Tut	Tim 1542	W	Tim 6560	F	7.7	37.2	Ros	36x4	36x7	Stn	.....	....	Op
Hewitt-Ludlow.	.....	Buda HU	4¼x5½	28.9	L	Mod	F	Strm	V	.....	.....	.....	.....	.....	U	4	Spic	.....	Shel	W	Shel	½	.....	.....	Ros	36x4‡	36x7‡	.....	.....	....	150
Independent HI (Iowa)	2940	Cont K-4	4⅛x5¼	27.2	L	Chic	FS	Strm	V	.....	Bos	.....	Full	.....	U	4	Bld	Tut	.....	I	.....	D	10	.....	Lav	36x4	36x7	StM	Fir	4950	156
Indiana 25.	....	Own 38	4⅛x5½	27.2	L	McC	F	Strm	G	Pier	Eis	.....	B.B.	B-Li 51	A	4	Spic	Shel	Shel D-370	W	Shel W-21	½	7.75	41.3	Woh	36x4	36x8	Day	.....	5850	156
International 52-Bus.	3500	Own	4¼x5	28.9	H	Own	FS	Ens	V	Own	Spl	Own	Own	.....	A	4	Own	.....	.....	I	.....	D	4.85	25	Own	.....	.....	Own	.....	5515	190
Kalamazoo HD.	3500	Wis UAU	4¼x6	28.9	L	GO	F	Strm	V	Pier	Bos	Dy	Full	Full	A	4	Bld	Shel	Shel D-343	I	Shel	½	9.5	57	Ros	36x5	36x10	Smi	.....	6720	144
Kalamazoo NH.	3350	Wis TAU	4 x6	25.6	L	GO	F	Strm	V	Pier	Bos	Dy	Full	Full	A	4	Bld	Shel	Shel D-343	M	Shel	½	8.75	42.8	Ros	36x5	36x10	Smi	.....	6400	160
Kelly-Springfield K35.	2900	Own	3¾x5¼	22.5	L	Lng	F	Zen	G	Pier	Eis	Del	Own	.....	A	3	.....	Per	.....	C	.....	D	10.6	35.11	Gem	36x4	36x4†	StM	.....	4850	Op
Kelly-Springfield K38.	2900	Own	3¾x5¼	22.5	L	Lng	F	Zen	G	Pier	Eis	Del	B.B.	.....	A	4	Pet	Per	.....	W	.....	½	11.6	35.03	Gem	36x4	36x4†	StM	.....	5300	Op
Kenworth K	3500	Buda HTU	4¼x5½	28.9	L	Idl	F	Strm	V	Mon	Bos	.....	B.B.	.....	U	3	Bld	Tut	.....	W	.....	.....	9.6	39	Ros	36x4	36x8	Jon	.....	5270	150
Kissel Freighter.	2875	Own 50000*	4¼x5½	28.9	L	McC	S	Strm	V	Pier	Eis	.....	W-Gr	.....	A	4	Spic	.....	.....	W	.....	F	8.5	42.5	Jac	36x4	36x8	Pru	.....	5100	168
Kleiber B.	....	Cont L-4	4½x5½	32.4	L	RT	FS	Strm	G	Sim	Bos	.....	.....	.....	A	4	Spic	.....	.....	W	.....	F	7.75	37.51	Ros	36x5	36x8	Smi	.....	6000	160
Lange E.	3450	Cont K-4	4⅛x5¼	27.2	L	Own	F	Strm	V	.....	Bos	.....	B-Li	.....	A	4	Pet	SP	Tim 1630B	W	Tim 6560	F	9.25	49.5	Ros	36x4	36x7	Hoo	Opt	5800	Op
Larrabee K-5.	3450	Cont L-4	4½x5½	32.4	L	R-T	F	Zen	G	Phar	Bos	.....	B-Li	B-Li 51	A	4	Spic	Shel	Shel D-370	W	Shel W-22	½	7.6	47	Ros	36x4	36x8	Smi	.....	5700	176
Mack AB.	3400	Own AB	4¼x5	28.9	L	Own	S	Zen	G	Own	Spl	.....	Own	.....	U	4	Spic	Mer	.....	C	.....	D	8.98	43.5	Own	36x4	36x4†	.....	.....	5200	Op
Mack AB.	3850	Own	4¼x5	28.9	L	Own	S	Zen	G	Own	Spl	.....	Own	.....	U	4	Spic	Mer	.....	R	.....	F	9.25	44.9	Own	36x4	36x4†	.....	.....	5600	Op
Master DD.	3190	Buda HU	4¼x5½	28.9	L	Chic	F	Zen	V	McC	Eis	.....	Full	.....	U	4	Spic	Det	.....	R	.....	F	Opt	Opt	Ros	34x4	36x8	Wal	.....	4400	144
Master DDL.	3290	Buda HU	4¼x5½	28.9	L	Chic	F	Zen	V	McC	Eis	.....	Full	.....	U	4	Spic	Det	.....	R	.....	F	Opt	Opt	Ros	34x4	36x8	Wal	.....	4600	170
Master W.	2890	Buda HU	4¼x5½	28.9	L	Chic	F	Zen	V	McC	Eis	.....	Full	.....	U	4	Spic	Det	.....	W	.....	F	Opt	Opt	Ros	34x4	36x8	Pru	.....	4500	144
Master WL.	2990	Buda HU	4¼x5½	28.9	L	Chic	F	Zen	V	McC	Eis	.....	Full	.....	U	4	Spic	Det	.....	W	.....	F	Opt	Opt	Ros	34x4	36x8	Pru	.....	4600	170
Nelson & LeMoon.	....	Cont K-4	4⅛x5¼	27.2	L	Chic	F	Strm	G	Phar	Bos	Bos	B-Li	B-Li 50	U	3	Own	GC	Tim 1542	B	Tim 6566	F	7.7	.....	Ros	36x4	36x7	StM	Gdy	4100	Op

| | | |

TRADE NAME AND MODEL	Chassis Price	ENGINE DETAILS: Make and Model Number (4 cylinder unless otherwise noted.)	Bore and Stroke	N.A.C.C. Horsepower	Valve Arrange't	Radiator (Make)	Lubrication	Carburetor	Fuel Feed	Governor (Make)	Ignition System	Engine Starter	Clutch (Make)	GEARSET: Make and Model Number	Location	Speeds	Universal (Make)	Springs (Make)	FRONT AXLE and Model Number	REAR AXLE: Final Drive	Make and Model Number	Type	Total Gear Reduction in High	Total Gear Reduction in Low	Steering Gear (Make)	TIRES, WHEELS, RIMS: *Pneumatic †Dual ‡Solid — Front	Rear	Wheels (Make)	Rim Equipment	Chassis Weight (Stripped)	Wheelbase
		1			2	3	4	5	6	7	8	9	10	11	12		13	14	15	16	17	18			19			20	21		
3½ Ton																															
Acason L.	....	Wau CU	4¾x5¾	30.6	L	Can	FS	Sheb	V	Wau	Eis	.....	Det	.....	A	4	Blld	Det	.....	W	.....	F	8.75	48.5	Ros	36x5	36x5†	Smi	Opt	7000	180
Acme 90	....	Cont L-4	4½x5½	32.4	L	GO	FS	Zen	V	Dup	Eis	Del	B.B.	Cott S	A	4	Bld	Det	Tim 1630B	W	Tim 6666	F	10.3	53.72	Ros	36x5	40x5†	Bim	.....	6983	168
American LaFrance 3R	....	Own	4¼x6	28.9	L	Bus	FS	Strm	...	Own	....	Wes	Own	Own	A	4	Own	Mer	Own	W	Own	...	7.8	42.8	Own	36x5‡	36x10‡	Day	.....	....	165*
Armleder KWB	4200	Buda YTU	4½x6	32.4	L	Own	F	Zen	G	Phar	Bos	.....	B-Li	B-Li 50	A	4	Spic	Math	Tim 1630B	W	Tim 6660	F	10.33	55.25	Ros	36x5	36x5†	StM	.....	6900	156
Armleder KWC	4200	Cont E-4	4½x5½	32.4	L	Own	S	Zen	G	Phar	Bos	.....	B-Li	B-Li 50	U	4	Spic	Math	Tim 1630B	W	Tim 6660	F	10.33	55.25	Ros	36x5	36x5†	StM	.....	6900	156
Atterbury 22DX Short	4375	Cont L-4	4½x5½	32.4	L	Own	F	Zen	V	Pier	Eis	.....	B-Li	B-Li 55	A	4	Spic	SP	Tim 1630B	W	Tim 6666	F	10.33	55.26	Gem	36x5	40x6†	Arc	.....	7500	150
Atterbury 22D Std	4275	Cont L-4	4½x5½	32.4	L	Own	F	Zen	V	Pier	Eis	.....	B-Li	B-Li 55	A	4	Spic	SP	Tim 1630B	W	Tim 6666	F	10.33	55.26	Gem	36x5	40x6†	Arc	.....	7500	174
Atterbury 22D LWB	4375	Cont L-4	4½x5½	32.4	L	Own	F	Zen	V	Pier	Eis	.....	B-Li	B-Li 55	A	4	Spic	SP	Tim 1630B	W	Tim 6666	F	10.33	55.26	Gem	36x5	40x6†	Arc	.....	7500	198
Available H	4175	Her MU-3	4½x5½	32.4	L	Chic	FS	Zen	V	Pier	Bos	.....	B-Li	B-Li 50	A	4	M-E	Tut	Tim	W	Tim 6666	F	10.33	49.99	Ros	36x5	40x5†	Sch	.....	6500	176
Bridgeport 4C	3990	Buda YTU	4½x6	32.4	L	Own	FS	Strm	G	Pier	Eis	.....	B.B.	.....	A	4	Hart	Per	.....	W	.....	...	9.25	.....	Ros	36x5	36x10	Jon	Fir	....	170
Brockway R	....	Cont L-4	4½x5½	32.4	L	Bus	F	Strm	V	Phar	Eis	.....	B-Li	B-Li 55	A	4	Spic	Mer	Tim 1630B	W	Tim 6666	F	8.75	46.8	Gem	36x5	36x5†	Smi	.....	6800	164
Chicago C	....	Her MU-3	4½x5½	32.4	L	Brm	FS	Strm	G	Sim	Bos	.....	B-Li	B-Li 50-4	A	4	Pet	Math	Tim 1630	R	Huck 35	F	9.33	50	Gem	36x5	36x10	Opt	.....	7200	170
Clydesdale 6	3650	Cont L-4	4½x5½	32.4	L	Own	F	Zen	V	Own	Bos	.....	B-Li	.....	A	4	Spic	Stan	.....	W	.....	F	9.25	49.5	Ros	36x5	36x5†	.....	.....	5500	163
Day-Elder FN	....	Cont L-4	4½x5½	32.4	L	Bus	F	Zen	G	Mon	Eis	.....	B-Li	B-Li 50	U	4	Hart	Shel	Col 8513	W	Tim	F	8.75	46.81	Gem	36x5	36x5†	Jon	Fir	5600	165
Dependable G	3550	Buda YTU	4½x6	32.4	L	Lng	F	Zen	V	Mon	Spl	AuL	Full	.....	A	4	Acm	Per	.....	W	.....	½	10	47.61	Ros	36x6	36x10	Bim	Fir	6000	165
Diamond T-K	3750	Hin	4¼x5½	28.9	L	GO	F	Strm	V	Own	Bos	.....	Covt	.....	A	4	Spic	Math	.....	W	.....	F	8.8	44.36	Gem	36x5	36x5†	.....	.....	7250	170
Dixon	4070	Cont L-4	4½x5½	32.4	L	GO	FS	Zen	G	Pier	Bos	.....	Full	Full HU	U	4	Hart	SP	Tim 1630B	W	Tim 6666	F	Opt	Opt	Ros	36x5	36x10	Smi	.....	7100	160
Dorris K7	4400	Own	4¼x5½	28.9	H	McC	F	Strm	G	Own	Bos	Wes	Own	W-Gr T53	A	4	Spic	Row	Tim 1630	W	Tim 6660	F	10.33	51.5	Ros	36x5	36x10	Smi	Fir	6750	194
Duplex E	3500	Buda TU	4¼x5½	28.9	H	Lng	FS	Sheb	V	Dup	Eis	.....	B-Li	.....	U	4	Pet	Tut	.....	I	.....	D	8	64	Woh	36x8	36x8	Pru	.....	6075	130
Gary KT	3790	Buda YTU	4½x6	32.4	L	Chic	F	Zen	V	McC	Eis	.....	B-Li	.....	A	4	Spic	Math	.....	W	.....	F	10.33	50	Ros	36x5	40x10	Pru	.....	7500	162
Giant 17	4150	Cont E-4	4½x5½	32.4	L	Own	B	Strm	G	Mon	Eis	.....	.....	B-Li 50	A	4	Spic	Shel	Tim 1630B	W	Tim 6660	F	10.25	49.61	Ros	36x5	36x5†	Way	.....	6800	176
G. M. C. K-71A	....	Own	4½x6	32.4	L	Own	F	Mar	G	Own	Eis	Opt	Own	Own	A	7	Own	Det	Tim 1630	W	Tim 6660	F	8.75	75.2	Own	36x5	40x5†	Own	.....	7945	163
G. M. C. K-71B	....	Own	4½x6	32.4	L	Own	F	Mar	G	Own	Eis	Opt	Own	Own	A	7	Own	Det	Tim 1630	W	Tim 6660	F	8.75	75.2	Own	36x5	40x5†	Own	.....	8070	187
G. M. C. K-71T	....	Own	4½x6	32.4	L	Own	F	Mar	G	Own	Eis	Opt	Own	Own	A	7	Own	Det	Tim 1630	W	Tim 6660	F	10.33	88.83	Own	36x5	40x12	Own	.....	7885	138
Gramm-Pioneer 75P	4225	Hin HA 200	4½x5½	32.4	L	Own	F	Strm	G	Hin	Eis	NE	Own	.....	A	4	Own	Per	.....	W	.....	½	9.5	45	Ros	36x6*	42x9*	Smi	.....	6000	...
Hal-Fur F	4000	Hin AA 200	4½x5½	32.4	H	GO	F	Zen	V	Hin	Bos	Wes	B.B.	.....	A	4	Pet	Mer	.....	W	.....	F	10.33	72	Gem	36x5	40x10	.....	.....	6500	180
Hall	....	Cont E-4	4½x5½	32.4	L	Own	FS	Zen	G	Dup	Bos	.....	B-Li	.....	A	..	Opt	Det	.....	W	.....	F	10	.....	Gem	36x5	36x5†	Smi	.....	6525	144
Harvey WHB	3950	Buda YTU	4½x6	32.4	L	Own	F	Strm	G	McC	Spl	.....	Full	B-Li 60	A	4	Spic	Shel	Shel 4FA20	W	Shel W-31	½	8.75	46.8	Ros	36x5	36x5†	StM	.....	7600	160
Hendrickson M	3725	Buda EBU	4¼x5½	28.9	L	Chic	F	Strm	G	McC	Spl	.....	Full	Full G-7	A	4	Ther	Tut	Tim 1630	W	Tim 6666	F	10	49.6	Ros	36x5	36x5	Stn	.....	....	Op
Hewitt-Ludlow	....	Own 40	4¾x5½	30.6	L	Mod	F	Strm	V	....	Bos	.....	.....	.....	U	4	Spic	.....	Shel	W	Shel	½	.....	.....	Ros	36x5‡	36x5†	Stn	.....	....	156
Indiana 35	....	Own 40	4¾x5½	30.6	L	McC	F	Strm	G	Pier	Eis	.....	B.B.	B-Li 55	A	4	Spic	Shel	Shel FA20	W	Shel W-31	½	10.2	54.84	Woh	36x5	36x10	Smi	.....	7050	160
Jackson B	3850	Cont E-4	4½x5½	32.4	L	Lng	FS	Strm	V	Pier	Eis	Dy	B.B.	.....	A	4	Spic	Per	.....	B	.....	F	9.2	43.49	Ros	36x7	36x7	.....	.....	7400	150
Kalamazoo SK	4000	Wis UAU	4¼x6	28.9	L	GO	F	Strm	V	Pier	Bos	Dy	Full	Full	A	4	Bld	Shel	Shel 4FA20	W	Shel	½	10.25	61.5	Ros	36x5	36x12	Smi	.....	7520	160
Kell-Springfield K-40	3900	Own	4½x6½	32.4	T	Lng	F	Zen	G	Pier	Eis	Del	B.B.	.....	A	3	....	Per	.....	C	.....	D	10.49	31.69	Gem	36x5	40x5†	StM	.....	7730	Op
Kelly-Springfield K-41	3900	Own	4½x6½	32.4	T	Lng	F	Zen	G	Pier	Eis	Del	B.B.	.....	A	4	Pet	Per	.....	I	.....	D	10	50.7	Gem	36x6	36x10	Cla	.....	7800	Op
Kelly-Springfield K-42	3900	Own	4½x6½	32.4	T	Lng	F	Zen	G	Pier	Eis	Del	B.B.	.....	A	4	Pet	Per	.....	W	.....	½	10.25	51.97	Gem	36x5	40x5	Smi	.....	8500	Op
Kleiber C	4470	Cont L-4	4½x5½	32.4	L	RT	FS	Strm	G	Sim	Bos	.....	.....	.....	A	4	Spic	.....	.....	W	.....	F	8.75	42.35	Ros	36x5	36x10	Smi	.....	7200	163
Larrabee L-4	4000	Cont L-4	4½x5½	32.4	L	R-T	S	Zen	G	Phar	Bos	.....	B-Li	B-Li 55	A	4	Spic	Mer	Shel 4FA20	W	Shel W-31	½	10.25	55	Ros	36x5	36x10	Smi	.....	7600	186
Mack AC	4950	Own AC	5 x6	40	L	Own	S	Zen	G	Own	Spl	.....	Own	.....	J	4	Spic	Mer	.....	C	.....	D	7.54	48.37	Own	36x5	40x5†	.....	.....	8070	Op
Master A	3990	Buda YTU	4½x6	32.4	L	Chic	F	Zen	V	Pier	Eis	.....	B-Li	.....	A	4	Spic	Det	.....	W	.....	F	Opt	Opt	Ros	36x5	40x5†	Smi	.....	8000	158
Master AL	4090	Buda YTU	4½x6	32.4	L	Chic	F	Zen	V	Pier	Eis	.....	B-Li	.....	A	4	Spic	Det	.....	W	.....	F	Opt	Opt	Ros	36x5	40x5†	Smi	.....	8200	194
Master E	4290	Buda YTU	4½x6	32.4	L	Chic	F	Zen	V	Pier	Eis	.....	B-Li	.....	A	4	Spic	Det	.....	R	.....	F	Opt	Opt	Ros	36x5	40x5†	Wal	.....	8000	158
Master EL	4390	Buda YTU	4½x6	32.4	L	Chic	F	Zen	V	Pier	Eis	.....	B-Li	.....	A	4	Spic	Det	.....	R	.....	F	Opt	Opt	Ros	36x5	40x5†	Wal	.....	8200	194
Menominee G	3800	Wis VAU	4½x6	32.4	L	Own	FS	Strm	G	Mon	Eis	Opt	Det	.....	A	4	Spic	Tut	.....	W	.....	F	10.3	53.71	Ros	36x5	36x10	Smi	Fir	6750	160
Nelson & LeMoon G 4	....	Cont L-4	4½x5½	32.4	L	Chic	F	Strm	G	Phar	Bos	Bos	B-Li	B-Li 50	U	4	Own	GC	Tim 1630	W	Tim 6666	F	8.7	42	Ros	36x5	36x5†	StM	Gdy	6000	Op
Noble E-71	3495	Buda YTU	4½x6	32.4	L	Chic	F	Strm	V	Pier	Wes	Wes	Full	W Gr T 53	U	4	M-E	.....	Shel 4FA20	W	Shel W-30	½	8.75	44	Lav	36x5	36x10	Bim	Fir	7200	182
Northway B3	4200	Own	4 x6	25.6	H	GO	F	Strm	V	Pier	Wag	Bj	Full	Full GU8	U	4	Spic	Per	Shel 4FA20	W	Shel W30	½	10	49.2	Ros	36x5	40x5†	Cla	Fir	7700	Op
Ogden F	....	Cont L-4	4½x5½	32.4	L	Chic	F	Zen	G	Pier	Spl	.....	B-Li	.....	A	4	M-E	Tut	.....	W	.....	F	10.33	.....	Ros	36x5	40x10	Stn	.....	7300	178
O.K	3975	Buda YTU	4½x6	32.4	L	R-T	FS	Zen	V	Pier	Eis	.....	Full	.....	A	4	Hart	Cham	.....	W	.....	½	10	60	Ros	36x5*	36x5†	Bim	.....	6350	164
Old Reliable C	4250	Wis VAU	4½x6	32.4	L	Chic	F	Strm	V	Phar	Bos	.....	Full	Full H	A	4	Pet	Shel	Shel 4FA20	W	Shel W-31	½	8.75	55.1	Ros	36x5	36x12	Sch	.....	7000	Op
Oneida D	4050	Hin 200	4½x5½	33.5	L	Mod	F	Strm	V	Hin	Apo	.....	Full	.....	A	4	Pet	Math	.....	W	.....	F	10.33	49.6	Ros	36x5	36x10	Smi	.....	7700	170
Packard ED	4100	Own	4½x5½	32.4	L	.....	F	Own	P	Own	Spl	Bj	Own	Own	A	4	Spic	.....	Own	W	Own	F	9	41.3	Own	36x5	36x5	.....	.....	7350	156
Paige 51-18	3145	Hin 200	4½x5½	32.4	L	Own	F	Strm	V	Sim	Bos	.....	B-Li	.....	A	4	Spic	Per	.....	W	.....	F	10.3	50.01	Ros	36x5	36x5†	Own	Fir	7000	160
Parker J-20	3950	Wis VAU	4½x6	32.4	L	Own	F	Strm	V	Pier	Eis	Wes	B-Li	W-Gr T53	A	4	Bld	....	Shul 610	W	Own	F	8.75	43.6	Ros	36x5	40x5†	Smi	.....	6550	160
Perfection E	2975	Cont K-4	4½x5¼	27.2	L	Own	FS	Zen	V	Own	Eis	Rm	B.B.	Own RU	A	4	Spic	Own	Tim 1630B	W	Tim 6560	F	9.5	63	Lav	38x7	42x9	Bim	Fir	5700	138
Pierce Arrow W-2	4350	Own	4½x6¾	32.4	T	Own	F	Strm	...	Own	Del	.....	Own	Own	A	4	Spic	SP	Own	W	Own	F	8	49	.....	36x5	36x5†	Day	.....	8350	162
Pittsburgher D	3800	Own	4½x5¼	27.2	T	GO	F	Strm	V	....	Bos	.....	B-Li	B-Li 50	U	4	Spic	.....	Vul 4F	W	Vul 4R	...	9.5	50.82	Ros	36x5	36x10	Smi	.....	6600	162
Power C	4200	Hin HA-200	4½x5½	32.4	L	GO	F	Zen	G	Hin	Eis	Wes	B-Li	.....	A	4	Pet	Row	.....	W	.....	½	10	48	Ros	36x5	40x10	StM	.....	7400	160
Rainier R-25	4400	Cont	4½x5½	32.4	L	EM	F	Zen	V	Pier	Eis	.....	B-Li	B-Li 60	A	4	Spic	SP	Tim 1632B	W	Tim 6666	F	10.33	55.26	Ros	36x5	36x5†	Jon	.....	8000	170
Republic 20	3095	Cont E-4	4½x5½	32.4	L	Own	FS	Strm	G	Phar	Bos	.....	Full	.....	U	4	Spic	Math	.....	I	.....	D	10.25	49.25	Jac	36x5	36x10	Smi	Fir	6520	165
Sandow	3695	.....	4½x5½	32.4	L	Chic	FS	Strm	G	Mon	Bos	.....	B-Li	.....	A	4	Spic	.....	.....	W	.....	..	1025	41.25	Ros	.....	.....	.....	.....	6800	172
Sanford W35B	....	Cont E-4	4½x5½	32.4	L	McC	F	Strm	G	Pier	Eis	.....	B.B.	B-Li 50	A	4	Spic	Shel	Shel 4FA10	W	Shel 31	½	8.7	34.8	Ros	36x5	36x5†	Hoo	Fir	6750	174
Sanford W-35D	....	Cont E-4	4½x5½	32.4	L	McC	F	Strm	G	Pier	Eis	.....	B.B.	B-Li 55	A	4	Spic	Shel	Shel 4FA10	W	Shel 31	½	8.7	34.8	Ros	36x5	36x5†	Hoo	Fir	6710	156
Selden Unit 70	3750	Cont L4	4½x5½	32.4	L	Lng	F	Strm	G	Phar	Eis	.....	B-Li	.....	A	4	Spic	Per	.....	W	.....	F	8.75	42.35	Gem	36x5	36x10	Stn	.....	7200	165
Selden Unit 52	4850	Cont L-4	4½x5½	32.4	L	Lng	F	Zen	V	Phar	Eis	NE	B-Li	B-Li	A	4	Spic	SS	.....	W	Tim	F	7.75	31	Gem	36x5	36x5	Arc	Opt	7200	195
Selden Unit 53	3640	Cont L-4	4½x5½	32.4	L	Lng	F	Strm	G	Phar	Eis	.....	B-Li	B-Li	A	4	Spic	Per	.....	W	Tim	F	8.5	45.4	Gem	36x4	36x7	Stn	Opt	6200	154
Service 72	....	Buda HU	4¼x5½	28.9	L	McC	F	Strm	V	....	Eis	.....	B.B.	B-Li 60	A	4	Spic	Shel	Tim 1630	W	Tim 6660	F	8.75	42.35	Ros	36x5	36x5½†	Stn	.....	6930	171
Signal M	....	Cont E-4	4½x5½	32.4	L	Lng	FS	Strm	G	Sim	Eis	.....	B-Li	.....	A	4	Spic	Det	.....	W	.....	F	12	58.08	Ros	36x5	40x10	StM	.....	7350	168
Signal ML	....	Cont E-4	4½x5½	32.4	L	Lng	FS	Strm	G	Sim	Fis	.....	B-Li	.....	A	4	Spic	Det	.....	W	.....	F	12	58.08	Ros	36x5	40x10	StM	.....	7700	204
Standard 3½-K	3645	Cont L-4	4½x5½	32.4	L	Lng	F	Strm	V	Sim	Eis	.....	B-Li	B-Li 55	A	4	Spic	Am	Tim 1630B	W	Tim 6666	F	10.3	55.1	Gem	36x5	36x12	Day	.....	7485	160
Standard 3½ KS	3725	Cont L-4	4½x5½	32.4	L	Lng	F	Strm	V	Sim	Eis	.....	B-Li	B-Li 60	A	4	Spic	Am	Tim 1630B	W	Tim 6666	F	10.3	55.1	Gem	36x5	36x12	Day	.....	7519	160
Sterling	4325	Own	4½x6¼	32.4	L	Own	F	Zen	V	Wau	Eis	.....	H-S	Own	A	3	Spic	Math	Tim 1630B	W	Tim 6666	F	8.75	39.5	Ros	36x5	40x5†	Pru	.....	8050	162
Stewart 10-X	....	Buda YTU	4½x6	32	L	Bus	F	Zen	G	Pier	Eis	.....	Full	.....	U	3	Hart	Det	.....	I	.....	D	10	48.01	Ros	36x5†	36x5†	Cla	Fir	....	165

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TRADE NAME AND MODEL	Chassis Price	ENGINE DETAILS: Make and Model Number (4 cylinder unless otherwise noted.)	Bore and Stroke	N.A.C.C. Horsepower	Valve Arrange't	Radiator (Make)	Lubrication	Carburetor	Fuel Feed	Governor (Make)	Ignition System	Engine Starter	Clutch (Make)	GEARSET: Make and Model Number	Location	Speeds	Universal (Make)	Springs (Make)	FRONT AXLE and Model Number	REAR AXLE: Final Drive	Make and Model Number	Type	Total Gear Reduction in High	Total Gear Reduction in Low	Steering Gear (Make)	TIRES, WHEELS, RIMS: *Pneumatic †Dual ‡Solid — Front	Rear	Wheels (Make)	Rim Equipment	Chassis Weight (Stripped)	Wheelbase
		1			2	3	4	5	6	7	8	9	10	11	12		13	14	15	16	17	18			19			20	21		
5 Ton—Con'd																															
Ogden G	....	Cont B-2	4¾x6	36.1	L	Chic	F	Strm	G	Con	Spl	.....	B-Li	.....	A	4	M-E	Tut	.....	I	.....	..	10.33	.....	Ros	36x6	40x12	Wal	.....	8600	175
Old Reliable D	4500	Wis RAU	4¾x6	36.1	L	Chic	F	Strm	V	Phar	Apo	.....	Own	B-Li 60	A	4	Pet	Shel	Shel 4FA20	W	Shel W-51	½	10.25	54.8	Ros	36x6	40x6†	Sch	.....	8000	165
Oneida E	4725	Hin 1600	4½x5½	33.5	H	Mod	F	Strm	V	Hin	Apo	....	Full	.....	A	4	Pet	Math	.....	W	.....	F	11.66	70	Ros	36x6	40x12	Smi	.....	9400	180
Packard EF	4500	Own	5 x5½	40	L	.....	F	Own	P	Own	Spl	Bj	Own	Own	A	4	Spic	.....	Own	W	Own	F	10.66	49	Ros	36x6	40x6†	.....	.....	9050	156
Parker M20	4850	Wis RBU	5 x6	40	L	Own	F	Strm	V	Sim	Eis	Wes	B-Li	W-Gr T 53	A	4	Bld	Tut	Shul 650	W	Tim 6760	F	10.25	51.1	Ros	36x6	40x6†	Smi	.....	8400	160
Pierce Arrow R10	4850	Own	4½x6¾	32.4	T	Own	F	Strm	P	Own	Del	.....	Own	Own	A	4	Spic	SP	Own	W	Own	F	10	61.2	.....	36x5	40x6†	Day	Gdy	9300	168
Rainier R-27	5100	Cont B-2	4¾x6	36.1	L	EM	F	Zen	V	Pier	Eis	Eis	B-Li	B-Li 60	A	4	Spic	SP	Tim 1632B	W	Tim 6760	F	13.66	73.08	Ros	36x6	40x6†	Smi	.....	9000	170
Rowe FW	4850	Wis VAU	4½x6	32.4	L	Fed	F	Zen	G	Sim	Bos	.....	B-Li	B-Li 60	A	4	Spic	Shel	Shel 5A30	W	Shel W-51	½	10.25	40.7	Ros	36x6	40x6†	Hoo	.....	8300	169
Sandow	4325	.....	4½x5½	32.4	L	Chic	FS	Strm	G	Mon	Bos	.....	B-Li	.....	A	4	Spic	.....	.....	W	.....	..	11	46.6	Ros	.....	.....	.....	.....	7800	175
Sanford W50	....	Cont E-5	4½x5½	32.4	L	McC	F	Strm	G	Pier	Eis	.....	B.B.	B-Li 60	A	4	Spic	Shel	Shel 4FA10	W	Shel 51	½	10.75	52.03	Ros	36x5	40x6†	Hoo	Fir	8700	174
Schacht	4600	Wis VAU	4½x6	32.4	L	Own	F	Zen	G	Dup	Bos	.....	B.B.	.....	A	4	Spic	Nat	.....	W	.....	F	14	66.5	Own	36x5	40x6†	StM	.....	8200	168
Schwartz MS	4900	Buda YTU	4½x6	32.4	L	Fed	F	Strm	G	Sim	Bos	.....	Full	Own	A	4	ME	Row	Own	W	Own	½	10.25	61.5	Ros	36x6	40x12	Smi	Fir	8285	156
Schwartz M	4900	Buda YTU	4½x6	32.4	L	Fed	F	Strm	G	Sim	Bos	.....	Full	.....	A	4	ME	Row	.....	W	.....	½	10.25	61.5	Ros	36x6	40x12	Smi	Fir	8365	170
Schwartz ML	4900	Buda YTU	4½x6	32.4	L	Fed	F	Strm	G	Sim	Bos	.....	Full	.....	A	4	ME	Row	.....	W	.....	½	10.25	61.5	Ros	36x6	40x12	Smi	Fir	8460	186
Selden Unit 90	4950	Cont B-5	4¾x6	36.1	L	Lng	F	Strm	G	Phar	Eis	.....	Det	.....	A	4	Spic	SP	.....	W	.....	F	10.25	55	Gem	36x6	40x12	Stn	.....	9650	164
Signal R	....	Cont B-2	4¾x6	36.1	L	Lng	FS	Strm	G	Sim	Eis	.....	B-Li	.....	A	4	Spic	Det	.....	W	.....	F	11.6	56.43	Ros	36x6	40x12	Smi	Gdy	9500	180
Standard 5K	4495	Cont B-5	4¾x6	36.1	L	Lng	F	Strm	V	Sim	Eis	.....	B-Li	B-Li 60	A	4	Spic	Am	Tim 1730	W	Tim 6760	F	11.66	62.3	Gem	36x6	40x14	Day	.....	8700	164
Sterling	4950	Own	5 x6¼	40	L	Own	F	Zen	V	Wau	Eis	.....	H-S	Own	A	3	Spic	Math	Tim 1730B	W	Tim 6760	F	8.8	39.69	Ros	36x6	40x6†	Pru	.....	9450	168
Sterling-Chain St. EHD	5500	Own	5 x6¼	40	L	Own	F	Zen	V	Wau	Eis	.....	H-S	Own	A	6	M-E	Math	Tim 1730B	C	Tim 6760	D	7.26	44	Ros	36x6	40x6†	Smi	.....	9950	174
Sterling-Chain St. ELD	4990	Own	4½x6¼	32.4	L	Own	F	Zen	V	Wau	Eis	.....	H-S	Own	A	6	M-E	Math	Tim 1630B	C	Tim 6760	D	7.26	44	Ros	36x5	40x10	Pru	.....	8000	174
Super Truck 100	4500	Wis	4¾x6	36.1	L	Chic	F	Zen	G	Sim	Spl	.....	Full	Full H	A	4	Spic	Shel	.....	W	Shel W-51	½	10.25	49.2	Ros	40x5	40x6†	Smi	.....	8500	164
Tiffin TW	4300	Cont B-2	4¾x6	36.1	L	Own	F	Sheb	G	Con	Bos	Wes	B.B.	Cotts S	A	4	Pet	Vul	Shel 5FA30	W	Shel W-51	½	10.25	53.3	Ros	36x6	40x6†	Smi	.....	8550	168
Titan 5	4100	Buda YBU	4½x6	32.4	L	.....	F	Zen	G	Phar	Eis	.....	B-Li	B-Li	A	4	Spic	Shel	Shel 5FA30	I	Own	D	11	59	Lav	36x5	40x12	Smi	.....	8400	156
Transport 75	....	Buda YTU	4½x6	32.5	L	Mod	F	Strm	G	Dup	Eis	Opt	B.B.	.....	U	4	Hart	Det	.....	I	.....	F	10	51.1	Jac	36x5	36x12	Mot	.....	7600	170
Traylor F	4700	Buda YTU	4½x6	32.6	L	GO	F	Zen	G	Sim	Bos	.....	B-Li	B-Li 60	A	4	Spic	Mer	Shel 4FA20	W	Shel W-32	½	10.2	.....	Ros	36x6	40x6†	Smi	.....	9000	170
Ultimate D	5500	Buda BTU	5 x6½	40	L	Own	F	Strm	G	Pier	Eis	Bos	B-Li	B-Li 60	A	4	Spic	Shel	.....	W	Shel W-51	½	8.75	46.8	Ros	36x6	40x14	Smi	.....	8600	180
United V	5000	Buda YTU	4½x6	32.4	L	Mod	F	Zen	G	Sim	Eis	Opt	Full	.....	A	4	Spic	Shel	Shel 5FA30	I	.....	D	12.5	75.36	Ros	36x5	40x6†	Cla	.....	9150	160
U. S., S. Special	3725	Hin HA	4½x5½	32.4	L	Lng	F	Strm	V	Hin	Eis	Opt	B-Li	B-Li	A	4	Opt	Shel	.....	W	Shel	½	11.75	62.9	Lav	36x6	40x5†	Smi	.....	7500	168
Walter S	5100	Own DU	4½x6¼	32.4	L	Bus	F	Strm	G	.....	Bos	Wes	B-Li	.....	A	4	Own	Stan	.....	R	.....	F	9	45	Ros	36x6	40x6†	Day	.....	8200	168
Ward La France A	4890	.....	5 x6¼	40	L	Own	F	Strm	G	.....	Bos	.....	B-Li	B-Li 60	A	4	M-E	Row	Tim 1730B	W	Tim 6760	F	8.8	47.08	Ros	36x6	40x6†	Smi	.....	9300	164
White 45	4500	Own GN	4¼x5¾	28.9	L	.....	F	Zen	V	Own	.....	.....	Own	Own GMC	U	4	Own	.....	Own	R	Own	F	11.6	47.85	Own	36x6	40x6†	.....	.....	7950	174
Wilcox F	....	Buda	4¾x6½	36.1	L	.....	S	Strm	V	Dup	Bos	.....	Own	.....	A	4	Spic	Shel	.....	R	.....	½	10.25	56.58	Own	36x5	40x12	Smi	.....	9000	162
Wilson H	4520	Cont	4¾x6	36.1	L	Lng	FS	Hol	V	Pier	Eis	.....	B.B.	Cott S	A	4	KB	Per	Tim 1730	W	Tim 6760	F	10.25	42.35	Ros	36x6	40x6†	Sm	.....	7500	160
Winther 109	4700	Wis WAU	4½x6	32.4	L	Brm	F	Mas	V	Dup	Eis	Wes	B.B.	B-Li 60	A	4	Bld	Math	Tim	I	Clark	D	12	60.5	Ros	36x5	40x6†	Cla	.....	8300	162
WisconsinE(Sauk City)	3500	Wau DU	4½x6¼	32.4	L	Chic	F	Strm	V	Wau	Eis	Opt	B-Li	.....	A	3	Spic	Det	.....	W	.....	F	9.25	.....	Lav	36x5	36x10	.....	Gdy	7000	148
5½, 6 and 7 Ton																															
Garford 150 A-7½	5200	Buda BTU	5 x6½	40	L	Own	F	Strm	G	Sim	Spl	.....	.....	Own	J	4	Spic	Per	Tim 1730B	C	Own	D	11.44	.....	Ros	36x6	40x7†	.....	.....	10200	162
Hall 7 Chain	....	Cont E-4	4½x5½	32.4	L	Own	FS	Zen	G	Dup	Bos	.....	B-Li	.....	U	..	Opt	Det	.....	C	.....	D	12	.....	Gem	36x5	40x6†	Smi	.....	8100	144
Hurlburt E-E	4850	Buda ATU	4¾x6½	36.1	L	.....	.....	.....	.....	Sim	Eis	.....	.....	.....	A	4	.....	.....	.....	W	.....	F	10.25	.....	.....	36x6	40x6	.....	.....	9965	Op
Kelly-Springfield K-60	4600	Own	4½x6½	32.4	T	Lng	F	Zen	G	Pier	Eis	Del	B.B.	.....	A	4	.....	Per	.....	C	.....	D	12.41	50.26	Gem	36x6	40x7†	Smi	.....	9000	Op
Kelly-Springfield K-61	4800	Own	4½x6½	32.4	T	Lng	F	Zen	G	Pier	Eis	Del	B.B.	.....	A	4	Pet	Per	.....	I	.....	D	11.6	61.8	Gem	36x6	36x7	Cla	.....	9025	Op
MacDonald A	5750	Buda YTU	4½x6	32.4	L	Own	F	Strm	G	Sim	Spl	.....	B-Li	.....	U	4	Own	Own	.....	I	.....	D	17.5	77	Own	40x7	Opt	Opt	.....	6000	...
Mack AC6½	5750	Own AC	5 x6	40	L	Own	S	Zen	G	Own	Spl	.....	Own	.....	J	4	Spic	Mer	.....	C	.....	D	8.95	57.41	Own	36x6	40x12	.....	.....	8672	Op
Mack AC7½	6000	Own AC	5 x6	40	L	Own	S	Zen	G	Own	Spl	.....	Own	.....	J	4	Spic	Mer	.....	C	.....	D	9.69	62.20	Own	36x7	40x7†	.....	.....	8950	Op
Old Reliable... L	6000	Wau EU	5 x6¼	40	L	Chic	S	Strm	G	Wau	Bos	.....	Own	Own	J	4	Pet	Shel	Cont 2005	C	Own	D	10.07	50.65	Ros	36x6	40x7†	Sch	.....	10250	Op
Schacht 7	5050	Wis VAU	4½x6	32.4	L	Own	F	Zen	G	Dup	Bos	.....	B.B.	.....	A	4	Spic	Nat	.....	W	.....	F	14	66.5	Own	36x6	40x7†	StM	.....	8500	168
Service 102	....	Buda YTU	4½x6	32.4	L	Lng	F	Strm	V	.....	Eis	.....	B.B.	B-Li 60	A	4	Spic	Shel	Tim 1730	W	Tim 6760	F	10.25	54.84	Ros	36x6	40x6†	Stn	.....	8760	171
Sterling 7½-Chain	6000	Wau	5 x6¼	40	L	Own	F	Zen	V	Wau	Eis	.....	H-S	.....	A	6	M-E	Math	.....	C	.....	D	7.26	44	Ros	36x6	40x7†	Smi	.....	10700	174
Tiffin 6 U-W	4500	Cont B-2	4¾x6	36.1	L	Own	F	Sheb	G	Con	Bos	Wes	B.B.	Cott S	A	4	Pet	Vul	Shel 5FA30	W	Shel W-51	½	10.25	53.3	Ros	36x6	40x12	Smi	.....	9200	168
U. S. T	4475	Buda ATU	4¾x6½	36.1	L	Lng	F	Strm	V	Sim	Eis	Opt	B-Li	B-Li 60	A	4	Opt	Shel	Shel 4FA20	W	Shel W-51	½	10.25	54.8	Lav	36x6	40x6†	Smi	.....	9700	172
Walter R	5400	Own DU	4½x6¼	32.4	L	Bus	F	Strm	G	.....	Eis	Wes	B-Li	.....	A	4	Own	.....	.....	F	11	55	Ros	36x6	40x7†	Day	.....	8500	168
Wichita S	5000	Wau DU	4½x6¼	32.4	L	.....	F	Strm	G	Wau	Wag	.....	Own	.....	A	4	Own	Det	.....	R	.....	½	14	66.3	Ros	36x6	40x6†	Smi	.....	10000	165
Winther 140	....	Wis-RBU	5 x6	40	L	Brm	F	Mas	V	Dup	Eis	Wes	B.B.	B-Li 60	A	4	Bld	Math	Tim	I	Clark	D	12	60.5	Ros	36x6	40x7†	Cla	.....	9600	162
Gasoline Tractor-Trucks																															
Buffalo Six 2½	3400	Her CU-3	4 x5½	25.6	L	Own	F	Zen	V	Sim	Bos	Bos	Covt	Covt MUC	..	10	Spic	Shel	Shel D-370	W	Shel W-21	½	8.75	70	Ros	.....	.....	Jon	Gdy	6200	Op
Federal Heavy Duty	....	Cont L-4	4½x5½	32.4	L	Own	F	Zen	V	Phar	Eis	Rm	B.B.	W-Gr	A	4	Spic	.....	Tim 1630B	W	Tim 6666	F	10.33	59.8	Gem	36x5	36x5†	.....	.....	6700	125
Harvey WFT	3050	Buda ETU	4¼x5½	29	L	Own	F	Strm	G	McC	Spl	.....	Full	B-Li 50	A	4	Spic	Shel	Shel D-370	W	Shel W-21	½	9.5	45.9	Ros	36x5	36x10	StM	.....	5660	125
Harvey WHT	4050	Buda YTU	4½x6	32.4	L	Own	F	Strm	G	McC	Spl	.....	Full	B-Li 60	A	4	Spic	Shel	Shel 4FA20	W	Shel W-31	½	10.2	54.7	Ros	36x6	36x12	StM	.....	7800	125
International 62 3 Ton	2600	Own	4¼x5	28.9	H	Own	FS	Ens	G	Own	Spl	Own	Own	.....	A	4	Own	.....	.....	I	.....	D	9	47.8	Own	.....	.....	Own	.....	.....	122
International 102 5 Ton	3800	Own	4¼x5	28.9	H	Own	FS	Ens	G	Own	Spl	Own	Own	.....	A	4	Own	.....	.....	I	.....	D	11	58.4	Own	.....	.....	Own	.....	.....	122
Lombard 140 H.P	....	Spec 6	5¾x7	72.7	L	Spec	F	Strm	P	.....	.....	.....	.....	Own	A	..	.....	.....	Own	W	Own	..	.....	.....	Spe	.....	.....	.....	.....	18000	...
Lombard 60 H.P	....	Spec 4	5½x6½	42	L	Spec	F	Strm	P	.....	.....	.....	.....	Own	A	..	.....	.....	Own	W	Own	..	.....	.....	Spe	.....	.....	.....	.....	8000	...
Mack AB 5-Ton	3400	Own AB	4¼x5	28.9	L	Own	S	Zen	G	Own	Spl	.....	Own	.....	J	4	Spic	Mer	.....	C	.....	D	10.5	42.27	Own	36x4	36x4†	.....	.....	4940	120
Mack AC 7-Ton	4950	Own AC	5 x6	40	L	Own	S	Zen	G	Own	Spl	.....	Own	.....	J	4	Spic	Mer	.....	C	.....	D	9.60	62.20	Own	36x5	40x5†	.....	.....	7670	120
Mack AC 10-Ton	5500	Own AC	5 x6	40	L	Own	S	Zen	G	Own	Spl	.....	Own	.....	J	4	Spic	Mer	.....	C	.....	D	10.5	67.38	Own	36x6	40x6†	.....	.....	8250	120
Mack AC 13-Ton	5750	Own AC	5 x6	40	L	Own	S	Zen	G	Own	Spl	.....	Own	.....	J	4	Spic	Mer	.....	C	.....	D	11.58	74.29	Own	36x6	40x12	.....	.....	8272	120
Mack AC 15-Ton	6000	Own AC	5 x6	40	L	Own	S	Zen	G	Own	Spl	.....	Own	.....	J	4	Spic	Mer	.....	C	.....	D	12.92	82.92	Own	36x7	40x7†	.....	.....	8650	120
Master DDT	3390	Buda HU	4¼x5½	28.9	L	Chic	FS	Mas	V	McC	Eis	.....	Full	.....	U	4	Spic	Det	.....	R	.....	F	Opt	Opt	Ros	34x4	36x7	Wal	.....	4500	Op
Walter FT	6500	Own DU	4½x6¼	32.4	L	Bus	F	Strm	V	.....	Eis	Wes	M-E	.....	...	5	Own	.....	.....	.....	.....	F	8.5	85	Ros	40x7	40x7†	Day	.....	8900	100
Watson U	4050	Cont E-4	4½x5½	32.4	L	Jam	FS	Strm	G	Pier	Sim	.....	B-Li	.....	U	4	Spic	Shel	.....	W	.....	F	8.75	42.35	Gem	34x4	36x5†	C&M	.....	6500	180

ELECTRIC COMMERCIAL CARS

E. C. M. Name and Model Number	Carrying Capacity	Chassis Weight—Exclusive of Battery	Chassis Weight—with Minimum Battery Capacity	Chassis Weight With Maximum Battery Capacity	Chassis Price	Maximum Speed	Location of Battery	Mileage Per Charge	Motor	Controller	Speeds Forward	Drive	Rear Axle	Springs	Front Tires	Rear Tires	Steering Gear	Wheelbase	Per Cent of Weight on Rear Wheels
C-T D-1	1000	2200	.....	.....	1585	14	A	55	G-E	Own	4	C-T	Flot	Shel	36x3	36x3½	W	100	69
C-T B-1.5	1500	2300	.....	.....	1985	14	A	60	G-E	Own	4	C-T	Flot	Shel	36x3	36x4	W	91⅝	65
C-T D-1.5	1500	2300	.....	.....	1985	14	A	60	G-E	Own	4	C-T	Flot	Shel	36x3	36x4	W	116	71
C-T B-2	2000	2400	.....	.....	2150	14	A	50	G-E	Own	4	C-T	Flot	Shel	36x3½	36x5	W	101	66
C-T D-2	2000	2400	.....	.....	2150	14	A	50	G-E	Own	4	C-T	Flot	Shel	36x3½	36x5	W	124	70
C-T B-4	4000	4000	.....	.....	2575	12	A	50	G-E	Own	4	C-T	Flot	Shel	36x4	36x4†	W	116	68
C-T C-6	6000	4300	.....	.....	2850	10	A	45	G-E	Own	4	I	Dead	Shel	36x4	36x4†	W	122	70
C-T C-7	7000	5000	.....	.....	3550	10	A	45	G-E	Own	4	I	Dead	Shel	36x5	36x5†	W	126	65
C-T A-7	7000	5800	.....	.....	3850	11	A	45	G-E	Own	4	I	Dead	Shel	36x6	36x4†	W	122	60
C-T A-10	10000	6500	.....	.....	3960	10	A	45	G-E	Own	4	I	Dead	Shel	36x7	36x5†	W	132	59
Kelland AT	1000	1950	3050	3550	.....	15	S	50	G-E	G-E	4	R	Flot	Mer	34x3	34x3	Ross	102	60
Kelland BT	1500	2050	3150	3950	.....	15	S	50	G-E	G-E	4	R	Flot	Mer	34x3½	34x3½	Ross	102	60
Kelland CT	2000	2150	3450	4050	.....	15	S	50	G-E	G-E	4	R	Flot	Mer	34x3½	34x4	Ross	102	60
Kelland AH	1000	2500	3600	4100	.....	15	A	45	G-E	G-E	4	C	Dead	Mer	36x3	36x3	Ross	106	60
Kelland BH	1500	2600	3700	4500	.....	15	A	45	G-E	G-E	4	C	Dead	Mer	36x3½	36x3½	Ross	106	60
Kelland CH	2000	2700	4000	4600	.....	15	A	45	G-E	G-E	4	C	Dead	Mer	36x3½	36x4	Ross	106	60
Lansden BG	1500	1400	.....	.....	1600	15	S	50	G-E	G-E	4	R	Flot	SP	32x4½	32x4½	Lav	108	50
Lansden MC	2000	2900	.....	.....	1850	12	A	50	G-E	G-E	4	C	D	SP	36x3	36x3½	KH	108	60
Lansden MD	4000	4400	.....	.....	2250	11	A	50	G-E	G-E	4	C	D	SP	36x4	36x3†	KH	120	60
Lansden ME	7000	5700	.....	.....	2950	10	A	45	G-E	G-E	4	C	D	SP	36x5	36x4†	KH	133	60
Lansden MF	10000	7500	.....	.....	3350	9	A	40	G-E	G-E	4	C	D	SP	36x6	36x5†	KH	146	60
Lansden MG	12000	8900	.....	.....	.....	7	A	35	G-E	G-E	4	C	D	SP	36x7	36x6†	KH	156	60
Milburn Model 40	2000	1990	.....	.....	1985	15	H&S	40	G-E	Own	4	.....	W	Math	32x4½	33x5	Gem	128	62
Milburn Model 43	1000	1690	.....	.....	1585	18	H&S	50	G-E	Own	4	.....	W	Math	32x4½	32x4½	Gem	115	56
Milburn Model 27D	500	1325	.....	.....	1085	20	H&S	50	G-E	Own	4	.....	W	Math	33x4	33x4	Gem	105	48
Steinmetz 10	1000	2000	.....	.....	.....	16	H&S	52	Diehl	Own	4	R	Russ	Shel	32x4½	32x4½	Lav	106	60
Steinmetz 15	1500	2300	.....	.....	.....	16	H&S	55	Diehl	Own	4	R	Russ	Shel	33x5	33x5	Lav	114	60
Walker 22	2000	2500	.....	.....	.....	14	.....	60	West	West	5	O	Own	Math	34x3½	36x4	Ross	101	66
Walker 42	4000	3700	.....	.....	.....	13	.....	60	West	West	5	O	Own	Math	36x4	36x6	Ross	114	66
Walker M 2	1250	2300	.....	.....	.....	15	.....	60	West	West	5	O	Own	Math	34x3	36x3½	Ross	94	66
Walker N	10000	6300	.....	.....	.....	10	.....	50	West	West	5	O	Own	Math	36x6	38x6†	Ross	141	66
Walker P	7000	5300	.....	.....	.....	11	.....	50	West	West	5	O	Own	Math	36x5	38x5†	Ross	131	66
Walter EN	4000	4400	.....	.....	3100	15	A	50	G-E	G-E	5	O	Dead	.....	36x4	36x7	Gem	114	60
Walter EL	6000	5000	.....	.....	3700	13½	A	50	G-E	G-E	5	O	Dead	.....	36x5	36x4	Gem	132	60
Walter ES	10000	7200	.....	.....	4500	12	A	50	G-E	G-E	5	O	Dead	.....	36x6	40x6	Ros	150	70
Walter ER	14000	7500	.....	.....	4800	11	A	50	G-E	G-E	5	Own	Dead	.....	36x7	40x7	Ros	150	70
Ward WS 2	4650	1650	.....	.....	.....	14	S	75	G-E	Own	4	W	Shel	Shel	32x3	32x3½	Own	88	56
Ward WA	7200	2860	.....	.....	.....	13	A	52½	G-E	G-E	4	W	Shel	Shel	32x3½	34x4	Own	90	61
Ward WA 2	7200	2470	.....	.....	.....	13	S	72½	G-E	Own	4	W	Shel	Shel	32x3½	34x4	Own	90	61
Ward WB	10000	3850	.....	.....	.....	12½	A	45	G-E	G-E	4	W	Shel	Shel	34x4	36x5	Own	102	64
Ward WB 2	10000	3350	.....	.....	.....	12½	S	70	G-E	Own	4	W	Shel	Shel	34x4	36x5	Own	102	64
Ward WD	14000	4875	.....	.....	.....	11	A	50	G-E	G-E	4	W	Shel	Shel	36x5	36x7	Own	114	68
Ward WD 2	14000	4350	.....	.....	.....	11	S	60	G-E	G-E	4	W	Shel	Shel	36x5	36x7	Own	114	68
Ward WF	20000	7200	.....	.....	.....	10	A	40	G-E	G-E	5	W	Shel	Shel	36x6	36x10	Own	132	70
Ward WF 2	20000	6450	.....	.....	.....	9	S	40	G-E	G-E	5	W	Shel	Shel	36x6	36x10	Own	132	70
Ward WH	28000	9400	.....	.....	.....	9	A	38	G-E	G-E	5	W	Shel	Shel	36x7	40x12	Own	146	70
Ward WH 2	28000	8200	.....	.....	.....	9	S	38	G-E	G-E	5	W	Shel	Shel	36x7	40x12	Own	146	71
Ward WM	8100	2600	.....	.....	.....	12½	A	65	G-E	Own	4	W	Shel	Shel	32x3½	32x4	Own	88	70
Ward WM 2	9100	2950	.....	.....	.....	12	S	60	G-E	Own	4	W	Shel	Shel	32x3½	32x5	Own	96	70

NOTE: Battery Equipment in all above makes is at the option of the purchaser. Battery Location Abbreviations: A—amidships; H—under hood; and S—under seat.

Manufacturers and Models Included in Specifications on Preceding Pages

Acason—¾, 1, 1½,2½, 3½, 5—The Acason Corp., Detroit, Mich.
Ace—1½, 2½—American Motor Truck Co., Newark, Ohio.
★**Acme**—1, 1½, 2, 3, 3½ 4½, 6¼—Acme Motor Truck Co., Cadillac, Mich.
American—2½, 4, 5—American Motor Truck & Tractor Co., Portland, Conn.
★**American La France**—¾, 2, 3½, 5—American La France Fire Engine Co., Inc., Elmira, N. Y.
Armleder—1, 1½, 2½, 3½—O. Armleder Motor Truck Co., Cincinnati Ohio.
Atco—1½, 2½—American Truck & Trailer Corp., Kankakee, Ill.
Atlas—1, 1½—Industrial Motor Corp., Rochester, N. Y.
★**Atterbury**—1½, 2½, 3½, 5—Atterbury Motor Car Co., Buffalo, N. Y.
★**Autocar**—1½, 2, 3½, 5—Autocar Co., Ardmore, Pa.
Available—1½, 2, 2½, 3½, 5—Available Truck Co., Chicago, Ill.
Avery—1—Avery Company, Peoria, Ill.
Bell—1, 1½, 2½—Iowa Motor Truck Co., Ottumwa, Ia.
Belmont—1, 2, 3—Belmont Motors Corp., Harrisburg, Pa.
★**Bessemer**—1, 1½, 2½, 4—Bessemer Motor Truck Co., Grove City, Pa.
Bethlehem—1, 2, 3—Bethlehem Motors Corp., Allentown, Pa.
Betz—7, 2½—Betz Motor Truck Co., Hammond, Ind.
Bridgeport—1½, 2½, 3½—Bridgeport Motor Truck Co., Bridgeport, Conn.
Brinton—1½, 2½—Brinton Motor Truck Co., Philadelphia, Pa.
★**Brockway**—¾, 1½, 2½, 3½, 5—Brockway Motor Truck Co., Cortland, N. Y.
Brown—2½—Brown Truck Co., Duluth, Minn.
★**Buffalo**—1½, 2½, T.T.—Buffalo Truck and Tractor Corp., Clarence, N. Y.
C. T.—1, 1½, 2, 3½, 5—Commercial Truck Co., Philadelphia, Pa.
Casco—1—Casco Motors, Inc., Portland, Maine.
Case—2—J. I. Case Plow Works Co., Racine, Wis.
Chevrolet—¾, 1—Chevrolet Motor Co. of Mich., Flint, Mich.
Chicago—1½, 2½, 3½, 5—Chicago Motor Truck, Inc., Chicago, Ill.
Climber—1½—Climber Motor Corp., Little Rock, Ark.
Clydesdale—¾, 1, 1½, 2½, 3½, 5—Clydesdale Motor Truck Co., Clyde, Ohio.
★**Commerce**—¾, 1½, 2½—Commerce Motor Truck Co., Detroit, Mich.
Concord—1½, 2, 2½, 3—Abbott-Downing Truck & Body Co., Concord, N. H.
Corbitt—¾, 1, 1½, 2, 2½, 3, 4, 5—Corbitt Motor Truck Co., Henderson, N. C.
Cyclone—1½—The Cyclone Motor Corp., Greenville, S. C.
★**Day-Elder**—1, 1½, 2, 2½, 3½, 5—Day-Elder Motors Corp., Newark, N. J.
Dearborn—1, 1½, 2—Dearborn Truck Co., Chicago, Ill.
Defiance—1, 1½, 2—Defiance Motor Truck Co., Defiance, Ohio.
★**Denby**—1½, 2, 3, 4, 5—Denby Motor Truck Co., Detroit, Mich.
Dependable—1¾, 2, 2½, 3, 3½—Dependable Truck & Tractor Co., East St. Louis, Ill.
Diamond T—1¾, 1½, 2½, 3½, 5—Diamond T Motor Car Co., Chicago, Ill.
Diehl—1, 1½—Diehl Motor Truck Works, Philadelphia, Pa.
Dixon—1½, 2½, 3½—Dixon Motor Truck Co., Altoona, Pa.
Dodge—¾—Dodge Bros., Detroit, Mich.
D-Olt—1, 1½, 2½, 5—D-Olt Motor Truck Co., Inc., Long Island City, N. Y.
Dorris—1, 2, 3½—Dorris Motor Car Co., St. Louis, Mo.
Dort—½—Dort Motor Car Co., Flint, Mich.
Double Drive—4—Double Drive Truck Co., Benton Harbor, Mich.
Douglas—1½, 2, 3—Douglas Motors Corp., Omaha, Neb.
Drake—2—Drake Motor & Tire Mfg. Corp., Knoxville, Tenn.
★**Duplex**—2, 3½—Duplex Truck Co., Lansing, Mich.
Eagle—1¼, 2—Eagle Motor Truck Corp., St. Louis, Mo.
Eugol—1—Eugol Motor Truck Co., Chicago, Ill.
F. W. D.—3—Four-Wheel Drive Auto Co., Clintonville, Wis.
Facto—2½—Facto Motor Trucks, Springfield, Mass.
Fageol—2, 3, 4, 5—Fageol Motors Co., Oakland, Cal.
★**Federal**—¾, 1, 1½, 2, 3½, 5, T.T.—Federal Motor Truck Co., Detroit, Mich.
Ford—1—Ford Motor Co., Highland Park, Mich.
Front Drive—1½—Double Drive Truck Co., Benton Harbor, Mich.
Fulton—1, 2—Fulton Motors Corp., Farmingdale, N. Y.
★**G. M. C.**—1, 2, 3½, 5—General Motors Truck Co., Pontiac, Mich.
G. W. W.—1½—Wilson Truck Mfg. Co., Henderson, Ia.
★**Garford**—1, 1½, 2½, 4, 5, 7½—Garford Motor Truck Co., Lima, O.
★**Gary**—1, 2, 2½, 3½, 5—Gary Motor Corp., Gary, Ill.
Giant—2½, 3½—Giant Truck Corp., Chicago Heights, Ill.
★**Graham**—1, 1½—Graham Brothers, Evansville, Ind.
★**Gramm-Bernstein**—1, 1½, 2, 3, 3½, 4, 5—Gramm-Bernstein Motor Truck Co., Lima, Ohio.
Hal-Fur—2, 3½—Hal-Fur Motor Truck Co., Cleveland, Ohio.
Hall—2½, 3½, 5, 7—Lewis-Hall Motors Corp., Detroit, Mich.
Harvey—2, 2½, 3½, 6, 10—Harvey Motor Truck Co., Harvey, Ill.
Hawkeye—1—Hawkeye Truck Co., Sioux City, Iowa.
Hendrickson—2½, 3½, 5—Hendrickson Motor Truck Co., Chicago, Ill.
Hewitt-Ludlow—2, 2½, 3½, 5—Hewitt-Ludlow Co., Inc., San Francisco, Cal.

★Indicates Advertisers. See Advertisers' Index.

Hug—1½—The Hug Co., Highland, Ill.
Hurlburt—1½, 2½, 3½, 5, 7—Harrisburg Mfg. & Boiler Co., Harrisburg, Pa.
Independent—1, 1½, 2½—Independent Motor Truck Co., Inc., Davenport, Ia.
Indiana—1, 1½, 2, 2½, 3½, 5—Indiana Truck Corp., Marion, Ind.
★**International**—¾, 1, 1½, 2, 2½, 3, 5—International Harvester Co., Chicago, Ill.
Jackson—3½—Jackson Motors Corp., Jackson, Mich.
Kalamazoo—1½, 2½, 3½, 5—Kalamazoo Motor Corp., Kalamazoo, Mich.
Kearns—1, 1½, 2—Kearns-Dughie Motors Co., Danville, Pa.
Kelland—Kelland Motor Car Co., Newark, N. J.
Kelly-Springfield—1½, 2½, 3½, 5, 6—Kelly-Springfield Motor Truck Co., Springfield, O.
Kenworth—1½, 2½, 3—Kenworth Motor Truck Corp., Seattle, Wash.
Keystone—2—Keystone Motor Truck Corp., Oaks, Pa.
★**Kissel**—1, 1½, 2½, 4—Kissel Motor Car Co., Hartford, Wis.
Kleiber—1, 1½, 2, 2½, 3½, 5—Kleiber & Co., Inc., San Francisco, Cal.
Lange—2, 2½—Lange Motor Truck Co., Pittsburgh, Pa.
Lansden—¾, 1, 2, 3½, 5, 6—Lansden Company, Danbury, Conn.
Larrabee-Deyo—1, 1½, 2½, 3½, 5—Larrabee-Deyo Motor Truck Co., Inc., Binghamton, N. Y.
Lombard—T.T.—Lombard Auto Tractor Truck Corp., New York, N. Y.
Luedinghaus—1, 1½, 2—Luedinghaus-Espenschied Wagon Co., St. Louis, Mo.
Maccar—1½, 2, 3, 4, 5—Maccar Truck Co., Scranton, Pa.
★**MacDonald**—7—Union Construction Co., San Francisco, Cal.
Mack—1½, 2, 2½, 3½, 5, 6½, 7½, T.T.—Mack Motors, Inc., New York, N. Y.
Mason Road King—1—Durant Motors, Inc., Long Island City, N. Y.
Master—1½, 2, 2½, 3½, 4, 5, T.T.—Master Trucks, Inc., Chicago, Ill.
Maxwell—1½—Maxwell Motor Co., Inc., Detroit, Mich.
Menominee—1, 1¼, 1½, 2, 3½, 5—Menominee Motor Truck Co., Clintonville, Wis.
Milburn—Milburn Wagon Co., Toledo, O.
Moreland—1, 1½, 2, 3, 5—Moreland Motor Truck Co., Burbank, Cal.
Napoleon—1, 1½—Napoleon Motors Co., Traverse City, Mich.
Nash—1, 2—Nash Motors Co., Kenosha, Wis.
Nelson-LeMoon—1, 1½, 2½, 3½, 5—Nelson & LeMoon, Chicago, Ill.
Netco—2, 2½—New England Truck Co., Fitchburg, Mass.
Niles—2½—South Main Motor Co., Pittsburgh, Pa.
Noble—1, 1¼, 2, 2½, 3½—Noble Motor Truck Co., Kendallville, Ind.
O. K.—1½, 2½, 3½—Oklahoma Auto Mfg. Co., Okay, Okla.
Ogden—¾, 1½, 2½, 3½, 5—Ogden Truck Co., Chicago, Ill.
Old Reliable—2½, 3½, 5, 6—Old Reliable Motor Truck Co., Chicago, Ill.
Oldsmobile—1—Olds Motor Works, Lansing, Mich.
Olympic—2½—Olympic Motor Truck Co., Tacoma, Wash.
Oneida—2, 2½, 3½, 5—Oneida Motor Truck Co., Green Bay, Wis.
Oshkosh—2, 2½—Oshkosh Motor Truck Mfg. Co., Oshkosh, Wis.
Overland—½—Willys-Overland Co., Toledo, O.
Packard—2, 3½, 5—Packard Motor Car Co., Detroit, Mich.
Paige—1½, 2½, 3½—Paige-Detroit Motor Car Co., Detroit, Mich.
Parker—1, 1½, 3, 3½, 5—Parker Motor Truck Co., Milwaukee, Wis.
Patriot—1, 2, 3—Patroit Mfg. Co., Navelock, Neb.
Penn—2—Penn Motors Corp., Philadelphia, Pa.
Perfection—¾, 1¼, 2, 3—Perfection Truck Co., Minneapolis, Minn.
★**Pierce-Arrow**—2, 3½, 5—Pierce-Arrow Motor Car Co., Buffalo, N. Y.
Pioneer—1—Pioneer Truck Co., Chicago, Ill.
Pittsburger—2, 3, 3½—Pittsburgh Truck Mfg. Co., Pittsburgh, Pa.
Power—1½, 3½—Power Truck & Tractor Co., St. Louis, Mo.
Premocar—1½—Preston Motors Corp., Birmingham, Ala.
Rainer—¾, 1, 1½, 2, 2½, 3½, 5—Rainer Motor Corp., Long Island City, N. Y.
Reliance—1½, 2½—Appleton Motor Truck Co., Appleton, Wis.
Reo—1¼—Reo Motor Car Co., Lansing, Mich.
Republic—¾, 1, 1½, 2½, 3½—Republic Motor Truck Co., Inc., Alma, Mich.
Reynolds—2, 3—Reynolds Truck Co., Mount Clemens, Mich.
★**Rowe**—1½, 2, 2½, 3, 4, 5—Rowe-Stuart Corp., Lancaster, Pa.
★**Ruggles**—¾, 1¼, 2, 2½—Ruggles Motor Truck Co., Saginaw, Mich.
Rumely—1½—Advance-Rumely Thresher Co., Inc., La Porte, Ind.
Sandow—1, 1½, 2½, 3½, 5—Moses & Morris Motors Corp., Chicago Heights, Ill.
Sanford—1, 1½, 2, 2½, 3½, 5—Sanford Motor Truck Co., Syracuse, N. Y.
★**Schacht**—1½, 2, 3, 4, 5, 7—G. A. Schacht Motor Truck Co., Cincinnati, O.
Schwartz—1, 2, 3, 5—Schwartz Motor Truck Co., Reading, Pa.
★**Selden**—1½, 2½, 3½, 5—Industrial Motor Corp., Rochester, N. Y.
★**Service**—¾, 1¼, 1½, 3, 3½, 4—Service Motor Truck Co., Wabash, Ind.
★**Signal**—1, 1½, 2½, 3½, 5—Signal Truck Corp. Detroit, Mich.
★**Standard**—1¼, 1½, 2½, 3½, 5—Standard Motor Truck Co., Detroit, Mich.
Steinmetz—Steinmetz Electric Motor Car Corp., Arlington, Baltimore, Md.
Sterling—1½, 2, 2½, 3½, 5, 7½—Sterling Motor Truck Co., Milwaukee, Wis.
★**Stewart**—1¼, 1½, 2½, 3½—Stewart Motor Corp., Buffalo, N. Y.
Superior—1, 2, 2½—Superior Motor Truck Co., Atlanta, Ga.
Super Truck—2½, 5—O'Connell Motor Truck Co., Waukegan, Ill.
Tiffin—1½, 2½, 3½, 5, 6—Tiffin Wagon Co., Tiffin, Ohio.
Titan—2½, 3½, 5—Titan Truck Co., Milwaukee, Wis.
Thomart Speed—1¼—Thomart Motor Co., Kent, Ohio.
Tower—1½, 2½, 3½—Tower Motor Truck Co., Greenville, Mich.
Traffic—1½, 2, 3—Traffic Motor Truck Corp., St. Louis, Mo.
★**Transport**—1, 1½, 2, 3, 3½, 5—Transport Truck Co., Mt. Pleasant, Mich.
★**Traylor**—1½, 2, 3, 5—Traylor Eng. & Mfg. Co., Cornwells, Pa.
Triangle—1, 1½, 2, 2½—Triangle Motor Truck Co., St. Johns, Mich.
Triumph—1½, 2, 2½—Triumph Truck & Tractor Co., Kansas City, Mo.
Twin City—2, 3½—Minneapolis Steel & Machinery Co., Minneapolis, Minn.
Ultimate—1½, 2, 2½, 3, 5—Vreeland Motor Co., Inc., Newark, N. J.
Union—2½, 4—Union Motor Truck Co., Bay City, Mich.
★**United**—1, 1½, 3½, 5—United Motor Products Co., Grand Rapids, Mich.
★**U. S.**—1¼, 1½, 2½, 3, 4, 5—United States Motor Truck Co., Cincinnati, Ohio.
Velie—1½, 2½—Velie Motors Corp., Moline, Ill.
★**Vim**—¾—Vim Motor Truck Co., Philadelphia, Pa.
★**Walker**—½, 1, 2, 3½, 5—Walker Vehicle Co., Chicago, Ill.
Walker-Johnson—2, 2½—Walker-Johnson Truck Co., Woburn, Mass.
Walter—2, 2½, 5, T.T.—Walter Truck Co., New York, N. Y.
★**Ward**—¼, 1, 2, 3½, 5—Ward Motor Vehicle Co., Mt. Vernon, N. Y.
Ward La France—2½, 3½, 5—Walker Motors, Inc., New York, N. Y.
Watson—1, 3½, 5, T.T.—Watson Wagon Co., Canastota, N. Y.
White—¾, 2, 3½, 5—White Co., Cleveland, Ohio.
Wichita—1, 2, 3, 3½, 5½—Wichita Falls Motors Co., Wichita Falls, Tex.
Wilcox—1, 1½, 2½, 3½, 5—Wilcox Trux, Inc., Minneapolis, Minn.
Wilson—1, 1½, 2½, 3½, 5—J. C. Wilson Co., Detroit, Mich.
Winter & Hirsch—2½, 3½—Winter & Hirsch Motor Truck Co., Chicago, Ill.
Winther—1, 1½, 2½, 3, 3½, 5, 7—Winther Motor Truck Co., Kenosha, Wis.
Wisconsin (Loganville)—2, 2½—Wisconsin Truck Co., Loganville, Wis.
Wisconsin (Sauk City)—1, 1½, 2½, 3½, 5—Wisconsin Farm Tractor Co., Sauk City, Wis.
Witt-Will—1½, 2, 2½—Witt-Will Co., Inc., Washington, D. C.
Yellow Cab—¾, 1¼—Yellow Cab Mfg. Co., Chicago, Ill.

★Indicates Advertisers. See Advertisers' Index.

Company Formed to Make Rolled Thread Dies

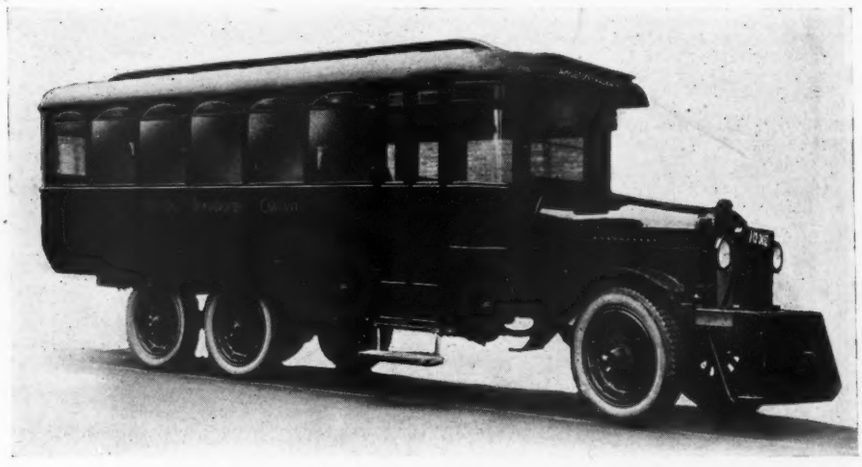
Rolled Thread Die Co., 28 Cherry St., Worcester, Mass., is manufacturing rolled thread dies, said to be very high grade in every particular.

The principals of this concern, E. Howard Reed and M. Clifton Nelson, whose connections have equipped them with a thorough knowledge of practical thread rolling, have made complete analyses of all difficulties usually encountered, utilizing micro-photographic methods which clearly show the actual effect on metal, of errors considered unimportant in the past.

The important results of this very complete and exhaustive study are embodied in the rolled thread dies which they manufacture.

Special attention is given to certain details, generally overlooked but which are most important, and it has been demonstrated that dies made to produce the best quality thread wear longest and make production costs lowest.

Screw threads made by the rolled thread process have in the past been popularly considered inferior to those made by the cut thread process, whereas it is perfectly possible to produce screws by the rolled thread process equal to and even superior in every way to cut thread screws, if the dies are made properly and set up properly.



This 30-Passenger, Six-Wheel Bus, Made by the Acme Body Works, Inc., Appleton, Wis., is Constructed With a Double Ventilating Roof

Other features are revolving sign board, full Spanish upholstering, electric push buttons, and three lights in the second or ventilating roof

Activities of the Motor Truck Association of Philadelphia

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THE COMMERCIAL CAR JOURNAL OFFICIAL ORGAN

AT the March 21st meeting of the Motor Truck Association of Philadelphia, F. H. Williams, of the White Company, president of the Association, urged the members to take a deeper interest in legislative matters in order to protect the interests of the public, motor truck owners and themselves to avoid the passage of laws inimical to all of them. He said that there was now being considered a plan which was of very serious import to motor truck users, but that he believed if the members of the industry would advise their legislators just what was wanted, that the proposed tax law would be modified to meet their suggestions.

Mr. Williams stated that the industry could not expect legislators coming from all walks of life to fully appreciate the desires and needs of the motor truck business, and asked that the members send their suggestions to the legislative committee of the truck association, so that it might be passed on to the proper authorities at Harrisburg for consideration. He cited the condition of the motor bus operator who was threatened with a tax that would put him out of business, whereas, he felt that such an operator should be considered the same as any other merchandise hauler. He said that he believed the proposed law would be so modified that justice would be done to all interests.

The subject for general discussion of the evening was: "Oil and Grease," which was handled by representatives of three of the leading oil companies of the country. John D. Gill, in charge of engine lubrication for the Atlantic Refining Co., spoke especially on the subject of motor lubrication. He said that oil must be plentifully supplied and an adequate lubrication system must be employed in order to secure proper lubrication, which, if supplied, would give indefinite life to an engine. This condition, he stated, was found in dynamos and turbine engines which ran practically continuously.

"Any effort to economize on lubrication," said Mr. Gill, "is erronous, as the total lubrication cost is about 1 per cent of the operating cost, which is less than the cost of fire insurance. Life insurance amounts to 2½ to 10 per cent. There are four factors to be considered in lubricating the engine, namely; oil pressure, which determines its viscosity; the speed of the engine, the temperature, and the method of distributing the lubricant. As the speed increases, friction increases between the particles of the oil, and the elimination of friction is vital in keeping down gasoline consumption, which is in proportion to friction. As gasoline expense is in proportion to 7 to 1 as compared to oil, it is apparent that any expense incurred in lubrication is really a big gasoline economy in addition to preserving the wearing parts of the engine. The temperatures in an engine, contrary to general opinion, are not exceedingly high if it is properly lubricated. In the head of a piston it varies from 650 to 700 degrees, while the average temperature of the metal parts is approximately 180 to 200 degrees. This is easily determined by the temperature of the water flowing through the radiator, which cannot be above 212 degrees, or it would be converted into steam. Correct lubrication is, therefore, one of the most important features of motor operation."

J. V. Surley, engineer in charge of grease lubrication for the Sun Oil Co., discussed chassis lubrication and advised the use of different kinds of grease in cups and in the pressure system. He said that a truck should be greased about every two weeks as it would save the life of the truck, and advised motor truck dealers to impress these facts upon their customers.

Howard Wilson, engineer of the Texas Oil Co., discussed the subject of lubrication of the differential in a highly scientific and technical manner that warned motor truck operators against neglecting the lubrication of this very vital part of the transmission machinery, which, because it is concealed, he said, was very apt to be overlooked.

Dr. E. J. Cattell, of the Chamber of Commerce, also spoke. Walter T. Bosworth, assistant secretary read a number of reports which were referred to the proper committees, and C. A. Hamilton, chairman of the Good Roads and Traffic submitted a report on that subject. The entertainment of the evening was conducted by Howard Armstrong, chairman of the entertainment committee.

Steel and Rubber Markets

Steel Products Prices

Quotations are f.o.b. Pittsburgh. Freight rates from Pittsburgh in carload lots per 100 pounds to points named are as follows: New York, 34c; Philadelphia, 32½c; Boston, 36½; Buffalo, 26½; Cleveland, 21½; Chicago, 34c.

Semi-Finished—Gross Ton

Billets, rerolling	$45 00	a	47 50
Billets, forging	52 00	a	55 00
Sheet bars	45 00	a	47 50
Slabs	45 00	a	47 50
Wire rods	50 00	a	....
Skelp (cents per lb.)	2 50	a	2 80

Sheets, Etc.—Cents per Pound

Blue annealed	$3 25	a	3 50
Black	3 85	a	....
Galvanized	5 25	a	5 50
Auto body	5 25	a	5 75
Strips, hot rolled	3 25	a	3 50
Strips, cold rolled	5 25	a	5 35
Hoops	3 30	a	3 50
Bands	3 30	a	3 50
Tin plate (per base box)	5 50	a	6 00

Hot Rolled—Cents per Pound

Bars	$2 50	a	2 75
Plates	2 50	a	2 75
Shapes	2 50	a	2 75
Rails, standard (gross ton)	43 00	a	....
Rails, light	2 25	a	....

Wire Products—Cents per Pound

Plain wire	$2 65	a	2 75
Barbed wire	3 75	a	3 90
Galvanized wire	3 25	a	3 35
Nails (per keg)	3 00	a	3 25
Cement coated nails (keg)	2 00	a	2 80
Woven fence (% off list)	65	a	64

Cold Drawn—Cents per Pound

Bars and shafting	$3 00	a	3 10
Ground shafting	3 40	a	3 65

Iron Products—Cents per Pound

Bar iron	$2 50	a	2 80
Refined iron	3 00	a	3 20
Cast iron pipe, 6-in., N. Y. (net ton)	58 60	a	....

Rubber Steadier

Plantations—			
1st latex, cr., spot	33⅝	a	..
April	33⅝	a	..
May	33¾	a	..
June	34	a	..
July-Sept.	34⅝	a	..
Oct.-Dec.	35¼	a	..
Ribbed smk., sheets spot—			
Spot	33⅝	a	..
April	33⅝	a	..
May	33¾	a	..
June	34	a	..
July-Sept.	34⅝	a	..
Oct.-Dec.	35¼	a	..
*Brown crepe, thin cl'n	..	a	32
*Specky	..	a	31½
Rolled	..	a	29½
Amber—			
*No. 1	33	a	..
No. 2	32½	a	..
No. 3	32	a	..
Para—			
Up-river, fine	30	a	..
do coarse	26½	a	..
*Island, fine	27¾	a	..
do coarse	15¾	a	..
Caucho Balls—			
*Upper	28¼	a	..
*Lower	27	a	..
Cameta	..	a	15¾
*Centrals—			
Corinto	25	a	..
*Esmeraldas	25	a	..
*Mexican scrap	24	a	..
*Guayule—			
Wet	..	a	..
Dry	..	a	20
Balata—			
Block, Ciudad	75	a	..
Block Colombian	60	a	..
Panama	58	a	..
Sheet	80	a	..
Massai—			
Prime	..	a	31½
*Benuela—			
No. 2	..	a	..
*Kassai—			
Br. black	..	a	30½
*Fr. red	..	a	25¼

Scrap Rubber

Boots and shoes	3⅞	a	4
Arctics, trimmed	3	a	3¼
Arctics, untrimmed	2¾	a	3
Inner tubes, No. 1	6	a	6½
Inner tubes, No. 2	5½	a	5¾
Hose, steam, fire	1½	a	1¾
Hose, air brake	1¼	a	1½
Tire, automobile, white	1½	a	2

* Nominal.

Price List of Truck Pneumatic Tire Casings, With Capacities and Inflation Pressures of Larger Sizes

	30 3½	32 4	34 4	32 4½	34 4½	33 5	34 5	35 5	36x6 Price	36x6 Carrying Capacity	36x6 Inflation Pressure	38x7 Price	38x7 Carrying Capacity	38x7 Inflation Pressure	40x8 Price	40x8 Carrying Capacity	40x8 Inflation Pressure	42x9 Price	42x9 Carrying Capacity	42x9 Inflation Pressure	44 x 10 Price	44 x 10 Carrying Capacity	44 x 10 Inflation Pressure
Achilles Rubber & Tire Co., Binghamton, N. Y.																							
Achilles Cord, non-skid	.....	.....	.....	.....	.....	.....	62.00	.....	95.00	2200	90	125.00	3000	100	.....	....	...	.....	....	...	.....	....	...
Acme Rubber Mfg. Co., Trenton, N. J.																							
Acme Cord	18.00	33.00	35.00	40.00	42.00	55.00	.....	57.00	81.00	2200	90	105.00	3000	100	.....	....	...	.....	....	...	.....	....	...
Ajax Rubber Co., Inc., New York, N. Y.																							
Ajax Improved Black Tread Cord, non-skid.	17.85	36.05	38.20	46.65	.....	46.95	54.10	61.00	88.85	2200	90	126.35	3000	100	162.80	4000	110	.....	....	...	366.05	6000	130
Amazon Rubber Co., Akron, O.																							
Amazon Cord, non-skid	19.80	36.15	38.40	48.40	50.65	59.85	61.75	60.85	70.25	2200	90	.....	....	...	.....	....	...	.....	....	...	.....	....	...
Armstrong Rubber Co., Inc., Garfield, N. J.																							
Armstrong Super Size Cord n-s.	17.00	33.00	35.00	43.00	45.00	53.00	57.00	56.00	86.00	....	..	120.00	....	...	160.00	....	...	.....	....	...	.....	....	...
Badger Rubber Works, Milwaukee, Wis.																							
Badger Cord	18.50	32.80	34.70	42.40	44.45	52.80	59.50	61.00	79.35	....	..	.....	....	...	.....	....	...	.....	....	...	.....	....	...
Blackstone, Div., Rep. Rub. Co., Youngstown, O.																							
Blackstone Cord, non-skid	16.50	32.80	34.70	42.40	44.45	52.80	.....	55.45	.....	....	..	.....	....	...	.....	....	...	...	....	...	.....	....	...
Blekre Tire & Rubber Co., St. Paul, Minn.																							
Blekre Cord non-skid	16.25	31.15	32.95	40.30	42.25	50.15	51.45	52.70	.....	....	..	.....	....	...	.....	....	...	.....	....	...	.....	....	...
Braender Rubber & Tire Co., Rutherford, N. J.																							
Braender Bulldog Super n-s Cord	16.50	32.80	34.70	46.65	48.90	58.10	59.50	61.00	91.50	2200	90	132.70	3000	100	171.00	4000	110	.....	....	...	.....	....	...
Brunswick-Balke-Collender Co., Chicago, Ill.																							
Brunswick Cord, Flat Tread n-s	18.50	32.80	34.70	42.40	44.45	52.80	54.30	55.45	91.50	2200	95	127.65	3000	105	164.55	4000	115	250.00	5000	125	.....	....	...
Burdick Tire & Rubber Co., Noblesville, Ind.																							
Air Bag Cord, non-skid	39.50	58.75	62.25	67.25	70.50	80.00	.....	83.00	143.00	2200	90	184.00	3000	100	238.00	4000	110	.....	....	...	.....	....	...
Columbia Tire & Rubber Co., Mansfield, O.																							
Columbia Cord Giant	20.75	.....	.....	.....	.....	.....	62.65	64.25	91.90	2200	90	.....	....	...	178.50	4000	120	.....	....	...	.....	....	...
Combination Rubber Mfg. Co., Bloomfield, N. J.																							
Combination Viking Fabric n-s	15.65	25.20	27.05	33.70	35.90	41.35	.....	.....	.....	....	..	.....	....	...	.....	....	...	.....	....	...	.....	....	...
Combination Viking Cord n-s	17.80	32.05	33.95	41.45	43.45	51.65	52.95	54.25	81.85	....	..	.....	....	...	147.25	....	...	.....	....	...	.....	....	...
Corduroy Tire Co., Grand Rapids, Mich.																							
Corduroy Cords, non-skid	17.50	32.80	34.70	42.40	44.45	52.80	54.20	55.45	.....	....	..	.....	....	...	.....	....	...	.....	....	...	.....	....	...
Dayton Rubber Mfg. Co., Dayton, Ohio																							
Thorobred Cord, non-skid	19.75	35.30	37.40	45.70	47.95	56.95	58.55	59.75	98.55	2200	90	137.45	3000	100	177.20	4000	110	.....	....	...	.....	....	...
Empire Tire & Rubber Co., Trenton, N. J.																							
Empire Cord, non-skid	16.45	32.80	34.75	42.45	44.45	52.85	.....	55.50	.....	....	..	.....	....	...	.....	....	...	.....	....	...	.....	....	...
Empire Heavy Duty Cord	.....	.....	.....	46.65	48.90	58.10	59.50	61.00	79.35	2000	90	119.00	2700	100	154.15	3650	110	.....	....	...	.....	....	...
Erie Tire & Rubber Co., Sandusky, O.																							
Erie Cord, non-skid	18.95	36.10	38.15	46.65	48.90	58.10	61.50	63.50	100.00	2200	90	140.00	3000	100	180.00	4000	110	.....	....	...	.....	....	...
Falls Rubber Co., Cuyahoga Falls, O.																							
Falls Evergrip Tread Cord	17.50	33.00	35.00	43.00	45.00	53.50	54.75	56.00	87.50	....	..	124.00	....	...	158.00	....	...	.....	....	...	.....	....	...
Falls Fabric Neverslip Tread	16.50	24.75	26.75	33.50	.....	.....	.....	.....	.....	.....	..	.....	.....	...	.....	.....	...	.....	.....	...	.....	.....	...
Federal Rubber Co. of Illinois, Cudahy, Wis.																							
Federal Rugged Cord	.....	.....	.....	51.45	53.90	64.05	65.55	67.20	96.00	2200	90	134.00	3000	100	173.00	4000	110	.....	....	...	.....	....	...
Federal Rut Guard Cord	23.45	.....	.....	.....	.....	.....	.....	70.55	100.80	2200	90	140.70	....	...	181.65	....	...	.....	....	...	.....	....	...
Firestone Tire & Rubber Co., Akron, O.																							
Firestone Cord, non-skid	.....	.....	.....	44.10	45.25	54.83	56.33	57.60	91.50	2200	90	127.65	3000	100	164.55	4000	110	264.40	5000	120	.....	....	...
Fisk Rubber Co., Chicopee Falls, Mass.																							
Fisk Truck Cord	20.85	.....	.....	49.00	51.35	61.00	62.45	64.00	96.00	....	..	134.00	....	...	.....	....	...	.....	....	...	.....	....	...
Gates Rubber Co., Denver, Colo.																							
Gates Cord, non-skid	14.85	32.90	34.80	42.50	44.55	57.30	59.60	61.50	82.90	2200	90	119.30	3000	100	154.50	4000	110	.....	....	...	.....	....	...
General Tire & Rubber Co., Akron, O.																							
General Cord, non-skid	.....	.....	.....	44.80	47.90	52.85	56.90	56.90	99.60	....	..	138.90	....	...	181.30	....	...	300.50	....	...	418.65	....	...
Gillette Rubber Co., Eau Claire, Wis.																							
Gillette Cord, non-skid	16.50	32.80	34.70	42.40	44.45	52.80	54.35	55.45	82.90	2200	90	116.25	3000	100	137.50	4000	110	.....	....	...	.....	....	...
Goodrich B. F. Rubber Co., Akron, O.																							
Goodrich Heavy-Duty Cord	.....	.....	.....	44.85	46.95	54.55	55.95	57.20	91.65	2200	100	127.90	3000	110	164.75	4000	120	.....	....	...	.....	....	...
Goodrich Silvertown Cord	15.20	32.80	34.70	42.40	44.45	52.80	.....	55.45	.....	....	..	.....	....	...	.....	....	...	.....	....	...	.....	....	...
Goodyear Tire & Rubber Co., Akron, O.																							
Goodyear Cord, All-Weather Tread	.....	.....	.....	.....	.....	.....	.....	.....	91.50	....	..	127.65	....	...	164.55	....	...	264.40	....	...	369.50	....	...
Goodyear Rut Proof	.....	.....	.....	.....	.....	.....	.....	.....	96.10	....	..	134.05	....	...	172.80	....	...	.....	....	...	.....	....	...
Goodyear Cross-Rib	.....	.....	.....	.....	.....	.....	.....	.....	73.20	....	..	102.10	....	...	131.65	....	...	.....	....	...	.....	....	...
Gordon Tire & Rubber Co., Canton, Ohio																							
Gordon Triangle Cord, non-skid	18.00	32.50	34.50	42.70	44.85	53.20	.....	55.85	90.00	2200	90	.....	....	...	.....	....	...	.....	....	...	.....	....	...
Hewitt Rubber Co., Buffalo, N. Y.																							
Hewitt Cord, non-skid	17.50	.....	.....	.....	.....	.....	62.70	63.80	99.80	....	..	139.50	....	...	.....	....	...	.....	....	...	.....	....	...
Howe Rubber Corp, Inc., New Brunswick, N. J.																							
Howe Ultra Cord, non-skid	.....	36.40	39.00	46.45	48.60	57.20	58.50	59.75	93.50	....	..	132.00	....	...	.....	....	...	.....	....	...	.....	....	...
India Tire & Rubber Co., Akron, O.																							
India Flat Tread Cord	20.00	36.15	38.40	48.40	50.65	59.85	61.75	60.85	87.25	....	..	121.95	....	...	157.25	....	...	.....	....	...	.....	....	...
India Round Tread Cord, n-s	19.60	34.15	36.30	45.40	47.55	56.35	58.15	59.20	.....	....	..	.....	....	...	.....	....	...	.....	....	...	.....	....	...
Iowa Cord Tire Co., Inc., Des Moines, Ia.																							
Iowa Cord, non-skid	18.15	36.08	38.23	46.70	49.01	58.19	.....	61.05	.....	....	..	.....	....	...	.....	....	...	.....	....	...	.....	....	...
Iowa Fabric, non-skid	15.51	26.29	28.33	.....	.....	.....	.....	.....	....	....	..	.....	....	...	.....	....	...	.....	....	...	.....	....	...

Kelly-Springfield Tire Co., New York, N. Y.																							
Kelly-Springfield Cord, Kant Slip	16.10	32.00	34.05	41.60	43.45	51.50	53.00	54.20	87.60	2200	90	120.35	3000	100	155.95	4000	110	.....	....	...	.....	....	...
Kelly-Springfield Caterpillar	.....	40.70	42.80	.....	.....	.....	55.95	.....	74.35	3500	..	.....	....	...	118.80	6000	...	.....	....	...	.....	....	...
Kelly-Springfield Standard	.....	33.90	35.85	.....	.....	.....	46.95	.....	61.10	3500	..	.....	....	...	.....	....	...	.....	....	...	.....	....	...
Kenyon Co., Inc., Brooklyn, N. Y.																							
Kenyon Cord, non-skid	19.85	.....	.....	49.85	52.50	.....	64.00	66.25	91.50	....	..	127.50	....	...	.....	....	...	.....	....	...	.....	....	...
Keystone Tire & Rubber Co., New York, N. Y.																							
Keystone Cord, non-skid	16.50	32.80	34.70	42.40	44.45	52.80	55.75	55.45	84.30	....	..	.....	....	...	.....	....	...	.....	....	...	.....	....	...
Kokomo Rubber Co., Kokomo, Ind.																							
Kokomo Heavy Duty Cord	16.50	32.80	34.70	42.40	44.45	52.80	.....	55.45	79.35	2200	90	.....	....	...	.....	....	...	.....	....	...	.....	....	...
Lee Tire & Rubber Co., New York, N. Y.																							
Lee P. P. Cord	.....	44.85	47.20	61.05	63.85	72.55	75.50	76.20	100.00	1970	90	150.00	2720	100	194.20	3595	110	.....	....	...	.....	....	...
McClaren Rubber Co., Charlotte, N. C.																							
Autocrat Cord, non-skid	18.40	33.90	35.95	44.60	46.80	55.55	56.70	58.40	81.70	....	..	.....	....	...	.....	....	...	.....	....	...	.....	....	...
Madison Tire & Rubber Co., Inc., Buffalo, N. Y.																							
Madison Oversize Cord	19.75	35.45	38.45	46.65	48.90	58.10	.....	61.00	.....	....	..	.....	....	...	.....	....	...	.....	....	...	.....	....	...
Manhattan Tire & Rubber Co., Mansfield, O.																							
Manhattan Giant Cord	20.75	.....	.....	.....	.....	.....	62.65	64.25	91.90	2200	90	.....	....	...	178.50	4000	120	.....	....	...	.....	....	...
Marathon Tire & Rub. Co., Cuyahoga Falls, O																							
Marathon Angle Tread Cord	20.40	33.50	35.50	43.35	45.40	54.00	55.40	56.70	93.00	....	..	.....	....	...	.....	....	...	.....	....	...	.....	....	...
Mason Tire & Rubber Co., Kent, O.																							
Mason Cord, non-skid	17.95	36.10	.....	46.70	49.00	58.20	59.80	61.05	91.50	2200	90	127.65	3000	100	164.55	4000	110	.....	....	...	.....	....	...
Mellinger Tire & Rubber Co., Kansas City, Mo.																							
Mellinger Cord, non-skid	18.00	32.40	34.25	41.90	43.90	52.15	.....	54.35	90.90	2200	90	.....	....	...	.....	....	...	.....	....	...	.....	....	...
Michelin Tire Co., Milltown, N. J.																							
Michelin Cord, non-skid	16.90	32.80	34.80	42.40	44.50	52.80	54.40	55.50	.....	....	..	.....	....	...	.....	....	...	.....	....	...	.....	....	...
Mid-Continent Tire Mfg. Co., Wichita, Kans.																							
Midco Cord, Universal	22.00	38.75	41.15	45.45	47.50	56.90	.....	59.00	92.50	2200	90	.....	....	...	.....	....	...	.....	....	...	.....	....	...
Miller Rubber Co., Akron, O.																							
Miller Cord, "Geared to the Road"	19.25	.....	.....	48.90	51.35	60.80	62.05	63.40	91.45	....	..	127.65	....	...	164.50	....	...	264.50	....	...	369.50	....	...
Mohawk Rubber Co., Akron, O.																							
Mohawk Cord, non-skid	.....	.....	.....	49.00	61.45	62.50	63.80	65.00	95.00	....	..	132.00	....	...	166.00	....	...	.....	....	...	.....	....	...
Murray Rubber Co., Trenton, N. J.																							
Murray Oversize Cord	16.45	32.80	34.75	42.45	44.45	52.85	.....	55.50	.....	....	..	.....	....	...	.....	....	...	.....	....	...	.....	....	...
Murray Heavy-Duty Cord	.....	.....	.....	46.65	48.90	58.10	59.50	61.00	79.35	2000	90	.....	....	...	.....	....	...	.....	....	...	.....	....	...
Norwalk Tire & Rub. Co., Inc., Norwalk, Conn.																							
Norwalk Cord	15.20	32.80	34.70	42.40	44.45	52.80	55.95	57.20	88.00	....	..	.....	....	...	.....	....	...	.....	....	...	.....	....	...
Norwalk Fabric	13.10	24.20	26.20	.....	.....	.....	.....	.....	.....	....	..	.....	....	...	.....	....	...	.....	....	...	.....	....	...
Leto Fabric cl	11.95	.....	.....	.....	.....	.....	.....	.....	.....	....	..	.....	....	...	.....	....	...	.....	....	...	.....	....	...
Leto Cord	14.50	.....	.....	.....	....	.....	.....	.....	.....	....	..	.....	....	...	.....	....	...	.....	....	...	.....	....	...
Para Belle Tire & Rubber Co., Mansfield, O.																							
Para Belle Giant Cord	20.75	.....	.....	.....	....	.....	62.65	64.25	91.90	2200	90	.....	....	...	178.50	4000	120	.....	....	...	.....	....	...
Pennsylvania Rubber Co., Jeanette, Pa.																							
Pennsylvania Cord, non-skid	16.95	33.20	35.30	42.80	44.90	53.25	.....	56.00	86.60	....	..	113.15	....	...	153.00	....	...	.....	....	...	.....	....	...
Perfection Tire & Rubber Co., Fort Madison, Ia.																							
Perfection Cord, non-skid	19.50	32.40	34.25	41.90	43.90	52.15	53.50	54.75	90.90	2200	90	121.50	3000	100	157.50	4000	110	.....	....	...	.....	....	...
Standard Fabrics	13.75	25.45	27.35	34.05	36.25	42.15	.....	44.75	.....	....	..	.....	....	...	.....	....	...	.....	....	...	.....	....	...
Powertown Tire Corp., Rochester, N. Y.																							
Powertown Cord non-skid	18.60	34.75	36.70	45.10	47.30	56.55	59.70	57.90	97.60	2200	90	118.05	3400	100	161.55	4000	110	.....	....	...	.....	....	...
Quaker City Rubber Co., Philadelphia, Pa.																							
Quaker Cord non-skid	21.00	32.80	34.70	42.40	44.45	52.80	60.00	55.45	95.60	....	..	129.90	....	...	.....	....	...	.....	....	...	.....	....	...
Racine Rubber Co., Racine, Wis.																							
Racine Muti-Mile Cord	16.50	32.80	34.70	42.40	44.45	52.80	55.95	57.20	88.85	....	..	126.35	....	...	162.80	....	...	.....	....	...	.....	....	...
Republic Rubber Co., Youngstown, O.																							
Republic Eagle Cord, non-skid	16.50	32.80	34.70	42.40	44.45	52.80	56.40	55.45	87.80	2200	90	129.90	3000	110	167.30	4000	110	.....	....	...	.....	....	...
Samson Tire & Rubber Corp., Los Angeles, Calif.																							
Samson Heavy Duty Cord	17.35	34.45	36.45	44.50	46.65	55.45	.....	58.20	.....	....	..	.....	....	...	.....	....	...	.....	....	...	.....	....	...
Samson Super Size Cord	.....	.....	.....	49.40	52.60	61.50	63.80	65.70	85.00	....	..	.....	....	...	.....	....	...	.....	....	...	.....	....	...
Samson S. O. S. Fabric	10.65	.....	.....	.....	.....	.....	.....	.....	.....	....	..	.....	....	...	.....	....	...	.....	....	...	.....	....	...
Samson S. O. S. Cord	13.95	.....	.....	.....	.....	.....	.....	.....	.....	....	..	.....	....	...	.....	....	...	.....	....	...	.....	....	...
Selberling Rubber Co., Akron, O.																							
Selberling All-Tread	.....	36.90	.....	45.30	47.60	57.35	59.05	60.60	85.80	....	..	121.55	....	...	157.30	....	...	.....	....	...	.....	....	...
Spreckles "Savage" Tire Co., San Diego, Cal.																							
Aristocrat Cord	.....	37.95	40.30	49.10	51.50	63.00	63.70	66.20	98.00	....	..	.....	....	...	.....	....	...	.....	....	...	.....	....	...
Trailmaker Cord	.....	29.10	30.70	.....	.....	.....	.....	.....	.....	....	..	.....	....	...	.....	....	...	.....	....	...	.....	....	...
Standard Tire Co., Willoughby, O.																							
Tiger Foot, non-skid	16.95	32.80	34.70	42.40	44.45	52.80	.....	55.45	.....	....	..	.....	....	...	.....	..	...	.....	....	...	.....	....	..
Standard Four Tire Co., Keokuk, Iowa																							
Standard Cord, none-skid	16.95	32.80	34.70	42.40	44.45	52.80	.....	55.45	91.65	....	..	.....	....	...	.....	....	...	.....	....	...	.....	....	...
Star Rubber Co., Inc., Akron, O.																							
Star Meteor Cord	23.15	.....	.....	40.65	46.45	48.65	57.75	58.75	60.60	....	..	94.10	....	...	131.60	....	...	170.00	....	. .	.....	....	...
Syracuse Rubber Co., Inc., Syracuse, N. Y.																							
Syracuse Syra Cord	17.95	32.80	34.70	42.40	44.45	52.80	54.70	55.45	88.35	....	..	.....	....	...	.....	....	...	.....	....	...	.....	....	...
Swinehart Tire & Rubber Co., Akron, O.																							
Swinehart Cord, non-skid	19.75	36.45	38.60	47.15	49.50	58.80	60.40	61.65	91.50	....	..	127.65	....	...	.....	....	...	.....	....	...	.....	....	...
Thermoid Rubber Co., Trenton, N. J.																							
Thermoid Cord, non-skid	20.50	33.05	34.95	42.75	44.80	53.20	54.60	55.80	84.30	2200	90	117.70	3000	100	.....	....	...	.....	....	...	.....	....	...
Traveler Rub. Co. of Bethlehem, Bethlehem, Pa.																							
Travelor Cord, non-skid	18.95	36.10	38.25	46.70	49.00	58.20	59.80	61.05	100.65	....	..	146.00	....	...	188.10	....	...	.....	....	...	.....	....	..
United States Tire Co., New York, N. Y.																							
United States Cord, non-skid	.....	.....	.....	44.50	46.65	55.45	57.10	58.20	91.50	2200	90	127.40	3000	100	164.15	....	...	.....	....	...	.....	....	...
Victor Rubber Co., Springfield, Ohio.																							
Victor Cord, non-skid	19.00	34.10	36.05	41.90	43.90	52.15	53.50	54.75	82.65	2200	90	.....	....	...	.....	....	...	.....	....	...	.....	....	...

Highway Transport Franchises

Presented by ARTHUR H. BLANCHARD, Professor of Highway Engineering and Highway Transport, University of Michigan, at the Ninth Annual Michigan Conference on Highway Engineering, February 12, 1923, at the University of Michigan, Ann Arbor, Michigan

WHAT is a highway transport franchise? Although the phrase "Highway Transport Franchise" has not been officially defined, it may be explained, as used in this paper, in order that the discussion of this topic may be intelligently comprehended. A state highway transport franchise constitutes an agreement between a state controlling body, as the party of the first part, and the highway transport operator, as the party of the second part, covering a guarantee or definite service on a prescribed route under stipulated conditions by the highway transport operator and a guarantee by the state that there shall not be unwarranted, ruinous competition by other highway transport operators.

Highway transport operators operating under franchises are motor vehicles common carriers, as they carry indiscriminately, within reasonable limitations, all persons or commodities, under general conditions of agreement applicable to the whole public, on defined routes according to definite service schedules.

For example, it is evident that the highway transport services rendered in accordance with the following definitions may be covered and controlled by highway transport franchises:

Features to be Controlled

Rural Motor Express pertains to the highway transportation of commodities on defined routes according to service schedules from several producers in a rural district to a terminal with or without return loads being carried from the terminal to the producers or other consumers.

Intercity Motor Express pertains to the transportation of commodities on defined routes between municipalities according to service schedules with or without service being rendered at intermediate points.

On the other hand, it is believed that the following defined services cannot efficiently or legally be covered by franchises:

Long and Short Rural Haulage includes all highway transport methods which utilize highways outside of municipalities except intercity haulage and highway transport operating on defined routes according to service schedules.

Intercity Haulage pertains to highway transportation of commodities between municipalities except highway transport operating on defined routes according to service schedules.

The same conclusions apply to the commercial transportation of persons.

*Report by Motor Vehicle Conference Committee, March 1, 1922.

The legal right of the state to control the operations of common carriers is generally admitted except in the case of interstate common carriers. At the present time, at least twenty-two states provide in their statutes for some degree of state control over motor vehicle common carriers.

Transport Franchises Are Essential

Are highway transport franchises an economic and public necessity? To those familiar with the development of the commercial transportation of commodities and passengers by motor vehicles during the past fifteen years in the United States and the longer history of highway transport in Great Britain, the answer is unreservedly in the affirmative.

Failures of highway transport enterprises are occurring every day due to a lack of knowledge of the fundamentals of the economies, science and art of highway transport. It is reported that ninety per cent of all highway transport companies doing business with New York City as a center fail within three years after entering this field. While fifty per cent may fail due to cut-throat competition by fly-by-night companies, it is conservatively estimated that at least fifty per cent. fail because of lack of knowledge of the A B C's of efficient highway transport business methods, cost accounting, management, and the operation and maintenance of equipment. Those interested in the efficient development of highway transport in the United States have a big task before them in bringing to the attention of groups of business men or capitalists, operators and prospective operators of highway transport, the necessity of having connected with their operating organizations men who are thoroughly trained in the methods of highway transport, the interrelationship of highway, railway and waterway transport, highway transport legislation, the fundamentals of highway transport cost and record systems and the principles of highway transport management, together, of course, with a knowledge of the mechanism, operation and maintenance of motor trucks, tractors and trailers.

Protect Responsible Operators

As an integral part of the essential transportation system of America, it is absolutely necessary that highway transport be placed upon a sound business basis in order that responsible operators may be protected and that this branch of common carrier service may be conducted in such a manner as will guarantee to the public constant, efficient, economic service.

From the standpoint of public safety, the state must insist that our motor vehicle common carriers transporting passengers provide a maximum degree of safety to the traveling public and eliminate reckless driving by inexperienced chauffeurs and the utilization of wholly inadequate motor vehicle equipment which may be characterized in some cases as a piece of junk carrying a packing box in which persons are jammed, the resulting contrivance being called a motor bus.

Based on an analysis of all state statutes covering the control of motor vehicle operation, the powers given to state public service controlling bodies may be classified as follows:*

1. Grant, refuse to grant, amend or revoke Certificates of Public Convenience and Necessity.
2. Prescribe routes.
3. Fix schedules.
4. Determine character of service and promote the comfort and safety of traveling public.
5. Establish fares and rates.
6. Require reports and uniform methods of accounting.
7. Examine accounts and records.
8. Supervise fiscal affairs such as incorporation, capitalization of stock, etc.
9. Compel additions to, extensions of or betterments in physical equipment.

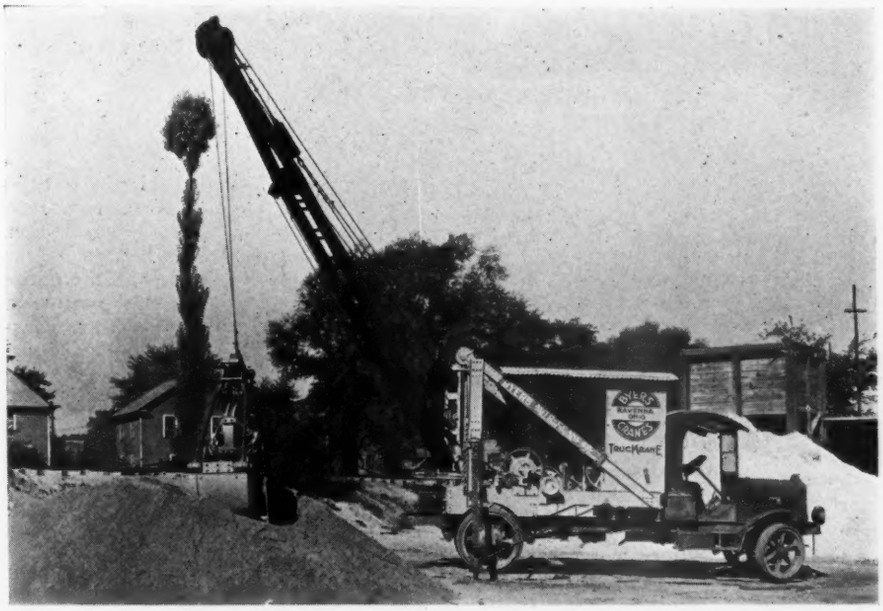
Members Must Qualify

If the powers enumerated are given to a state controlling body, what should be the qualifications of the members of such a body? It is evident that a grave responsibility to the public and to highway transport business will rest upon them. They should be men possessing vision, judicial minds, and a broad knowledge of transportation, and should be unprejudiced pertaining to the relative development of railway, waterway and highway transport.

Different fields of public and business affairs should be represented. An efficient controlling body might be made up of the Attorney General of the state as an ex-officio member; a highway transport man of high standing and possessing a broad knowledge of the development of all phases of transportation of commodities and passengers by motor vehicles; an experienced highway engineer, who understands the fundamentals of highway transport and who thoroughly comprehends the relationship existing between the economic operation of highway transport and such highway factors as grades, alignments, widths, drainage, foundations, the character and maintenance of roadway surfaces, and the methods of controlling and directing the operation of

traffic on highways; a business man who has dealt with big commercial problems, and a banker who is familiar with the practice of bonding common carriers and other enterprises in connection with the operation of which the public must be protected. To this group of five might be added a steam railroad man and an electric railway man provided that they possess a broad vision relative to the development of transportation in America, such as is possessed by W. H. Lyford, vice-president of the Chicago and Southern Illinois Railway. Mr. Lyford's comprehensive knowledge of the transportation problems of the United States was shown to the public through the medium of his admirable address before the Second National Conference on Highway Engineering and Highway Transport Education in Washington in October, 1922, during which he vividly outlined the many fields of railway transportation in connection with which highway transport may be efficiently employed and how the improvement of highways and the development of highway transport is of direct benefit to the railroads. At least ninety per cent of the railway officials of the United States could profitably digest Mr. Lyford's conclusions with the result that many would be converted and in the future would not exhibit that narrow-mindedness which has led many to vigorously protest against the use of railroad taxes for highway improvement, and the development of highway transport.

In conclusion, it may be said that, in the opinion of the writer, the highway transport operator of sound financial standing, who is endeavoring to render to the public an efficient, economical and safe transportation service, will welcome the passage of state laws relative to highway transport franchises provided that they are based and administered on the principles which have been herein outlined.



Sand, Crushed Stone and Other Loose Materials Used by the Contractor, All Look Alike to Equipment Such as is Depicted Above

This specialized contractor job is known as the Truckrane. It is manufactured by the Byers Machine Co., Ravenna, O. Interested readers can find a more detailed description on page 58 of the September issue of this Journal. To give an idea as to the strength, capacity and speed of the Truckrane, not long ago one of them unloaded two standard gondola cars and loaded forty-eight 10-ton trucks from storage, all in 8 hours.

Miller Tool Issues Booklet on Flat Rate

Dealers who have not as yet been convinced of the feasibility of the time schedule with corresponding flat-rate charges for service repairs, should procure the Service Tool Bulletin issued by the Miller Tool & Mfg. Co., Detroit. A decidedly convincing article on the above subject opens the pamphlet and reviews the work that has been accomplished in flat-rate systems.

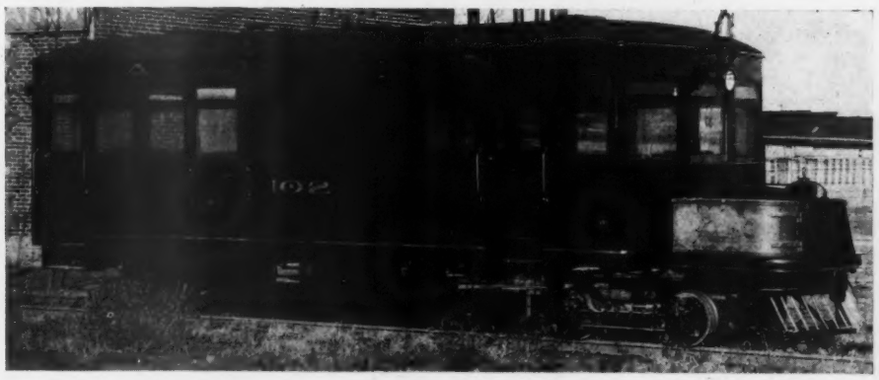
"The flat-rate system," says the article, "is an outgrowth of the effort on the part of a few high grade automobile merchants to develop methods of handling repair work that would insure dependable, efficient, economical service to the car owner and yet return a fair and reasonable profit to the dealer or repairman." The bulletin also contains useful instructions on fitting crankshaft and crankpin bearings as well as several other timely and interesting subjects.

G. M. C. Issues Road Building Pamphlet

"Money Saving Transportation for Road Construction and Maintenance" is the title of a new pamphlet just issued by the General Motors Truck Co. It is a 16-page hand book dealing with the widely used and modern methods of hauling material in building roads. It contains a number of tables which the road contractor will find of value in figuring on every road job. Every contractor should have one.

The General Motors Truck Co. Transportation Engineering Department has made a careful study of the road construction field throughout the United States in order to determine the cheapest and most efficient methods and means of transportation. Requests for detailed information covering any specific problem a contractor may have will receive the prompt attention of the engineering department. No charge is made for this information and service.

There are 2,819,000 miles of highways in the United States, of which Texas has the greatest mileage, totaling 182,816, and Kansas is the next largest with 124,143.



Gasoline Railway Cars Continue to Make Progress in Short Line Railroad Transportation Service

This most completely equipped railway motor coach was recently turned out by the Indiana Truck Corp., of Marion, Ind., and is now being operated by the Alabama-Tennessee & Northern Railroad, over its two hundred miles of track, from York, Ala. It is a 48-passenger job, known as Model 303, and is as complete in equipment as any regular steam passenger car with every possible factor of safety. The body is of modern steel construction and the car is driven by a 65 hp., heavy-duty engine.

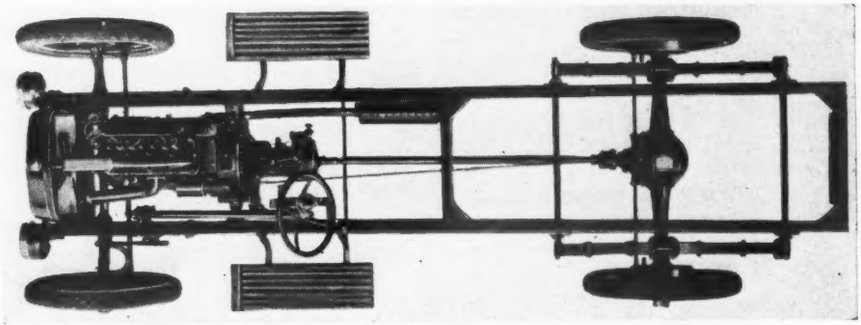
NEW COMMERCIAL CARS

New Stewart One-Ton Truck Model 16

THE Stewart Motor Corp., Buffalo, N. Y., just announced an entirely new 1-ton speed truck, the Model 16, which will be listed at $990 f.o.b. factory.

This new chassis has a wheelbase of 130 in., the frame being of pressed steel. The thickness of the metal in the side rails is 5-32 in. The frame is 6 in. deep at the point of greatest depth.

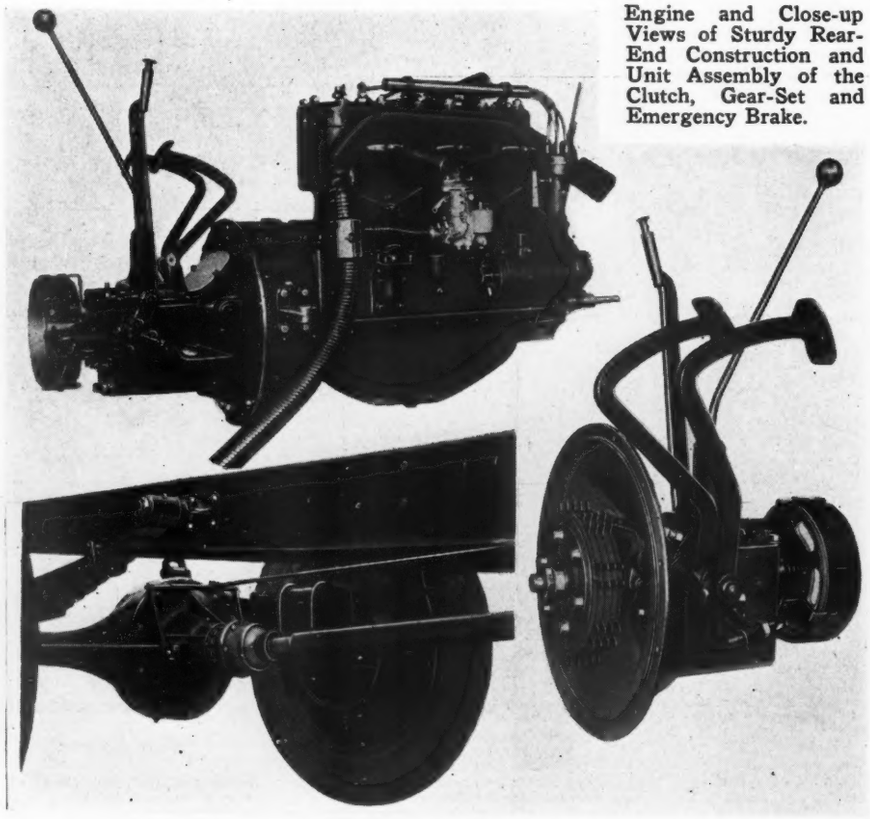
The engine is of the 4-cylinder type, 3¾ in., bore x 5 in. stroke, S. A. E. h.p. rating 22½, actual h.p. developed on the block 43. Besides having full pressure feed lubrication, which is automatically controlled by a lever connected with the foot accelerator, the engine has a 5-bearing crankshaft, 2⅛ in. in diameter. All the connecting rod and crankshaft bearings are bronze-backed babbit lined. Both the cylinder head and block are removable. A thoroughly ribbed crankcase is design to prevent distortion and vibration. Heavy ribs are used to support the 5 crankshaft bearings. The pistons are of cast iron. The piston pins are 1⅛ in. diam. Cooling is by thermo syphon.



Bird's-Eye View of the New Model 16 One-Ton Stewart

Ignition is by a Remy engine driven distributor and generator. A Remy electric starter is also used. Gasoline is fed to a Zenith carburetor from a tank concealed in the metal cowl. The radiator has a heavy pressed steel shell with a removable cellular type core of large capacity.

Power is transmitted from the engine through a multiple-disk, dry plate automatic adjusting clutch, having four disks with double facings and three plain disks 8 in. diam., to a 3 speed transmission. The transmission is supported from the bell housing of the motor and the entire power plant is supported in the frame at three points. The main shaft of the transmission is mounted on annular ball bearings.



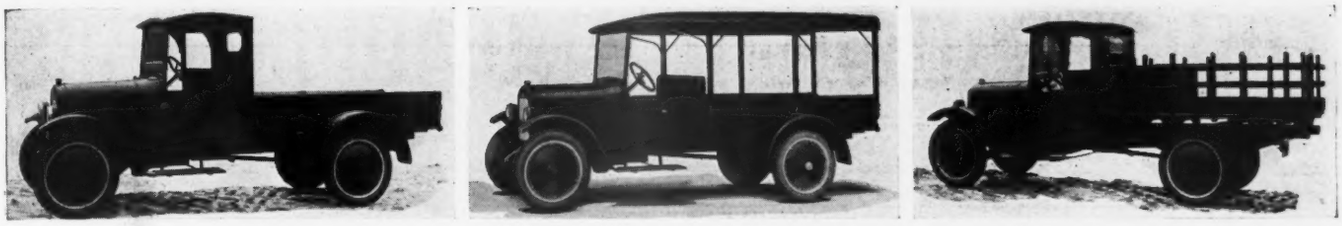
Engine and Close-up Views of Sturdy Rear-End Construction and Unit Assembly of the Clutch, Gear-Set and Emergency Brake.

Steering is through a Gemmer worm and gear with spark and gasoline levers mounted on wheel. Electric horn button is also on top of steering post. The I-beam dropped forged front axle is Timken bearing equipped throughout. The cross tie rod back of the axle beam is of the new ball and socket self-adjusting type.

All springs are semi-elliptic, front being 38½ in. long, 2¼ in. wide and of 8 leaves; rear, 50 in. long, 2½ in. wide and composed of 12 leaves. The springs are bronze baked throughout.

The rear axle is of the semi-floating bevel type, having spiral gears with straddle mounted pinion. It is Timken equipped throughout, except in the case of the pinion shaft, which is carried on large type annular bearings. Axle shafts are 1⅞ in. in diam. The gear ratio is 5.1 to 1. The large differential is of Brown-Lipe make. The heavy pressed steel housing is reinforced by a long inner sleeve. The ends of the housing are also reinforced by a large steel casting riveted to the ends of the housing, and on which are cast the spring pads. All parts are easily accessible through a rear plate or by removing the pinion housing.

There is but one set of brakes on the rear wheels. It is an internal expanding brake actuating on a 14-in. drum 2¼ in. wide and operated by a cam. The emergency brake is supported on the rear of the transmission and is 8 in. in diam.,



These Views Show Three of the Various Bodies Provided by the Stewart Company for Mounting on Its Model 16 Chassis

the brake facing being 2½ in. in width. It is of the external contracting type and is fitted with expanding springs to prevent dragging. The tubular propellor shaft is 2 in. in. diam. and is equipped with metal covered joints 5½ in. in diam. at the flange. The universal joint pins are equipped with bronze bushings.

Disk steel type wheels with Firestone demountable rims are regular equipment.

Cord tires, 34 x 4½ are used, although the rims will oversize 35 x 5.

Regular equipment includes electric headlights, electric tail lamp, electric horn, tool kit and jack and pressure oil gun for chassis lubrication.

The chassis less seat, cab and windshield weighs 2650 lb. and has a speed in excess of 40 m.p.h. A number of standard stock bodies having 8 ft. loading space to fit every possible requirement will be furnished, such as open express with top, stake platform, enclosed panel type, wire screen type, etc.

One-Ton Speed Chassis Included in New Duplex Line

IN announcing the new models that have been added to the old established Duplex line the Duplex Truck Co., Lansing, Mich., calls special attention to the 1-ton speed chassis, as there is found embodied in this the performing power and ruggedness that is so essential in a truck that is called upon to give the great variety of service that is demanded of a vehicle of this type.

In the design of this truck standard conventions have been followed, but overcapacity has been built into it at the points where experience has proven trouble is apt to develop through misuse and overloading, such as the frame, springs, propeller shaft and universal joints and drive shafts. Particular attention has been paid to these units.

The engine is a 3¾ x 5⅛ Buda, powerful at low speed, capable of sustained high speed and an efficient pulling speed range of from 5 m.p.h. up.

The same standard set by the engine is maintained elsewhere in this truck through the use of Modine Spirex radiator; Brown-Lipe disk clutch and transmission; Peters propeller shaft and universal joints; Timken axles; Penn springs; Parish and Bingham frame; Westinghouse electrical equipment and 33 x 5 pneumatic cord truck tires.

The wheel base is 132 in.; tread, 56 in., and the frame length back of the cab or loading space, 102 in. The list selling price is $1495.

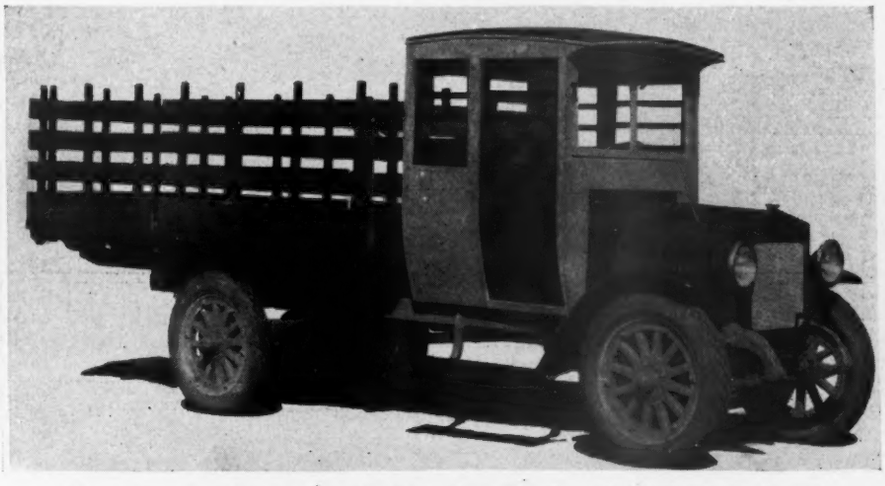
The same general characteristics are noted in the new 1½-ton Duplex speed truck, but with larger units where needed a wheelbase lengthened to 138 in.; a longer proportionate frame length and with tire equipment of 35 x 5 front, 36 x 6 rear, pneumatic cord truck type. The list selling price of this model is $1985.

The Duplex Limited of 2 tons' capacity is continued and now sells with solid tire equipment, for $2445.

A special Duplex road builders and contractors' model has been developed during the past year. This is of 2½-3 tons' capacity, which fits it for the hauling of two yards of gravel with power hoist and dump body equipment. For such work this job is made with 120-in. wheelbase to provide a short turning radius and ease of maneuvering in gravel pits, excavations, on new road and elsewhere where such trucks are used. This model is also built with 160-in. wheelbase for lumber and regular commercial work. The list selling price of this is $2975.

The bus field is provided for by model AB 23, a 25-passenger model, although smaller capacity buses are offered on the 1 and 1½-ton chassis in 16 and 20-passenger capacities, respectively. The standard bus body equipment is of the full enclosed, front entrance type with option of the char-a-banc or tour-abus design, thereby meeting practically all bus demands.

The well-known Duplex 4-wheel drive 3½-ton job is offered for work of a strictly heavy duty nature. It is now offered at the low price of $3500. This truck is peculiarly adapted to logging, oil field development work, road building and the heavy work attendant upon general construction.



New One-Ton Speed Chassis Just Announced and Specially Designed by the Duplex Company

Durant to Found Bank

A national bank with a capitalization of $30,000,000 and 300,000 stockholders is to be established in New York City by W. C. Durant, according to a recent announcement. Mr. Durant has outlined a number of interesting features, such as the limitation that no stockholder may hold more than one share; officers will not receive compensation for services, etc., which will be incorporated in the bank's management.

TRUCK EQUIPMENT AND APPLIANCES

Remy Motor Bus Electrical Equipment

THE development of the bus has created a demand for an electric generator of a capacity not heretofore used in the automotive industry.

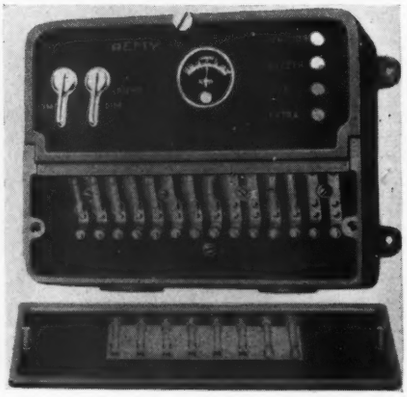
The problem of designing and building a generator with the required output was in itself comparatively simple, but other conditions concerning the mounting and means of driving it and regulation of output combined to make this problem considerably more difficult.

The Remy Model 971-A generator for bus service, recently announced by the Remy Electric Co., Anderson, Ind., is designed for mounting in a housing adapted to the S. A. E. take-off pad of a transmission.

The generator is driven at approximate-1 1-3 engine speed from the constant mesh gear of the transmission. The power required to drive this generator at maximum output is 1.1 h.p., and of course the transmission gears are much better adapted for carrying this load than are the gears ordinarily used for driving accessories. In gear shifting the generator acts slightly as an aid in braking the clutch and actually makes the operation of shifting gears smoother.

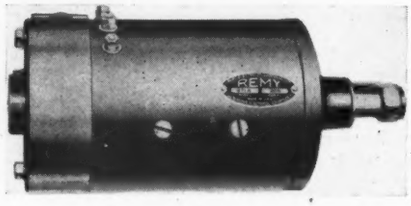
This generator is of the third brush regulated type and is equipped with the Remy thermostatic control. Its maximum output is 40 amp. at 1200 r.p.m. Cut-in occurs at 400 r.p.m. and 20 amp. can be generated at 600 r.p.m. This output is, of course, entirely too great to be used for charging any normal-sized battery, and the following method of controlling the output and the resultant charging rate is employed.

The generator field circuit is insulated and carried up to the switch panel on the dash. Here the field current passes through a resistance unit and returns to the generator through the charging circuit. This field resistance, however, is so arranged that when the bus dome lights are turned on the resistance is automatically shunted out of the field circuit and the field strength increased with a consequent rise in the generator output.



Compact Control Box for the Many Bus Connections

The dome lights require the major portion of the current consumed in bus illumination, and therefore if the rise in generator output when these lights are turned on balances their current requirements, there is no additional load placed on the battery. Actually, the maximum output of the generator with all lights on should be sufficient to carry the entire light load and still continue to charge the battery at a safe rate, as there are varying periods of time during which the generator is not operating and current is being consumed.

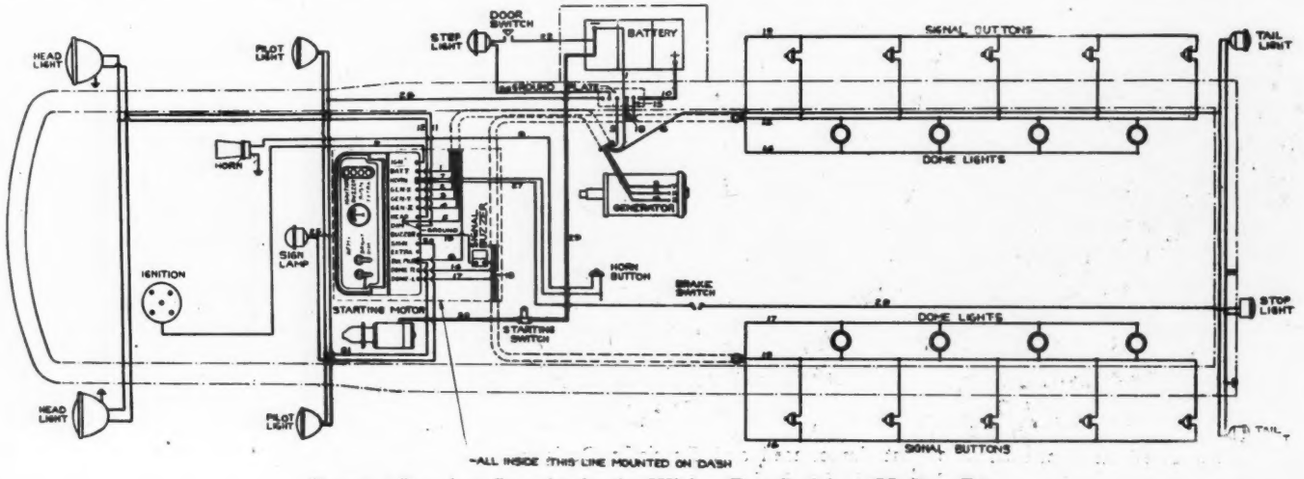


Remy Model 971-A Generator for Bus Service

Of course the maximum output can be varied by shifting the third brush, and as the resistance in the field circuit can very easily be increased or decreased, a wide range of output can be secured. Since this generator is of two-pole design, its output once set, remains constant and frequent readjustments are not necessary.

In addition to the Model 971 generator Model 925-A is offered for smaller buses on which current requirements are not unusually large. This unit is merely a large truck type generator of conventional design, mechanically and electrically. It is designed for mounting on a No. 2 S. A. E. flange and should be driven at not less than one and one-half times engine speed. Output is 20 amp. maximum hot and a charging rate of 7 amp. at 600 generator r.p.m. is available. There is no method of field control furnished with this generator and a liberal-sized battery must be used (180-200 amp. hours), if requirements make it necessary to operate the generator at maximum capacity.

Because of the unusual number of connections to be made in a motor bus, manufacturers have had difficulty in securing suitable junction boxes, fuse panels and switches. It is desirable that all of these necessities shall be centralized in a



Layout, Showing Completely the Wiring Required in a Modern Bus

single unit, the Remy company, therefore, designed for use with the Model 971 generator the Model 480-A switch box.

This unit consists of an aluminum box on the face of which are two panels. On the upper panel which is hinged is located the reverse current cut-outs, ammeter, and all of the switches necessary for the electrical system, with the exception of the starting switch. Back of the lower panel, which is held in place by two thumb nuts, is a junction and fuse block with terminals for every connection necessary. On the back of the panel are located a number of spare fuses.

Among the desirable features of this switch box are the following:

All terminals on the junction block are plainly marked as to which circuit they are for.

Individual fuses are provided for every circuit. Arrangements are made to wire the dome lights on each side separately and a fuse is provided for each side. Horn, signal buzzer and generator field circuit are among those fused.

All internal wiring of the switch box is complete and it is only necessary for the bus manufacturer to connect the various circuits to the proper terminals on the junction block.

Two outlets for 1-in. conduit are located in the bottom of the box. One is for chassis wiring and the other for body wiring. This is especially desirable in case the body is installed outside the chassis manufacturer's plant.

Interior of switch box is easily inspected and all parts are accessible.

Junction blocks, fuses and switch connection are protected from dust and water.

Silurium Battery Boxes

Silurium Boxes are made in one piece of a non-absorbent material of solid uniform substance. The partitions are an integral part of the box. It is mentioned that the contraction or expansion after the case leaves the mold is negligible.

This One-Piece Battery Box is Composed of a Solid, Non-Absorbent Material

There is a style and size for 90 per cent of the automobile storage batteries made. They are manufactured by the Silurium Mfg. Co., Cleveland, Ohio.

Schrader's Introduce a Valve-Fishing Tool

As every truck owner well knows, one of the most exasperating things about changing a pneumatic truck tire has been to get the valve stem through the opening in the rim.

A. Schrader's Son, Inc., the well-known makers of tire valves and tire pressure

New Device for Getting Valve Stem Through Rim When Changing Pneumatics

gages, have placed on the market a contrivance called the Schrader Universal Valve Fishing Tool, by the use of which the valve is drawn into the right position without a moment's loss of time.

To employ, simply attach this device to the valve stem after the tube has been inserted in the casing, drop the cross bar through the rim and draw the valve stem into position. It works as well on the heaviest, largest pneumatic truck tire as on the smallest. The retail price is 75c.

Adapters for Either Pneumatic or Solid Tire Equipment

Will's Adapters, manufactured by Wilcox Trux, Inc., Minneapolis, Minn., allow the use of solid or pneumatic tires without changing wheels. With adapters as equipment on a truck the tire best suited to road conditions can be used. Change from one equipment to another requires but 30 minutes. If the roads are rough, frozen or extremely hot, solids can be used. Reversely, when traction, speed and the flexible qualities of pneumatics are demanded and conditions permit pneumatics can be used. By reason of these adapters tire equipment can be used that best meets the conditions of changing seasons. Briefly, the primary object of this solid tire equipment to the pneumatic tire wheel is to eliminate the use of the pneumatic tire when road conditions are such that they cannot be used very profitably.

Gear ratio, speed and road clearance in changing from pneumatics to solids is not changed, as the adapters permit the use of solid tires having the same diameter of the pneumatic tires.

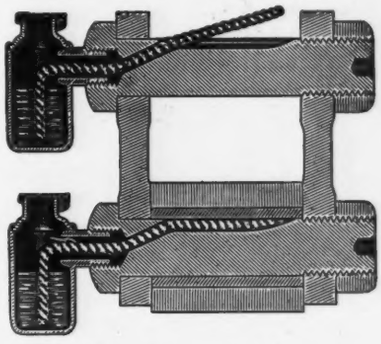
In construction Will's Adapters are light in weight, being hollow cast of special steel properly ribbed for strength. For example the 40-in. adapter with standard wheel and fittings weighs approximately 40 lb. less than a 40-in. solid tire wheel.

The adapters are furnished in all sizes to meet all sizes and needs. When ordering rim sizes should be specified.

Wire Wick Lubricating System

This system put out by the Gits Bros. Mfg. Co., 1940 S. Kilbourne Ave., Chicago, Ill., lubricates every part of shackle bolt, king pin and drag link bearings by capillary attraction on a wire wick brush. Requires filling once in three weeks on an average.

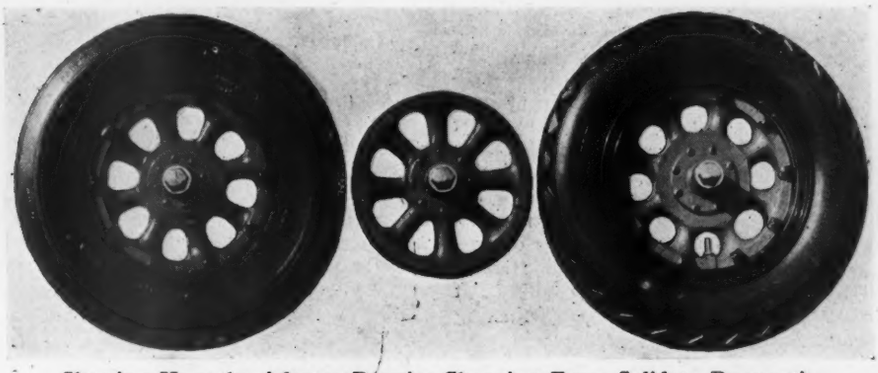
The wicks, the same as those used for tobacco pipe stem cleaners, can be ob-



This New System Lubricates by Capillary Attraction

tained in any drug or cigar store. This company has a well equipped factory for manufacturing shackle, king, and connecting link bolts together with their oil cups and oil reservoirs.

The illustration shows the Gits Bros. wire wick lubricator applied to shackle bolts. The upper bolt shows action of wire wick when spring is removed. Gits Oil Cups are free flowing, and have dust-tight, self-closing hinged lids. They are opened with the spout of the oil can, and close after filling.

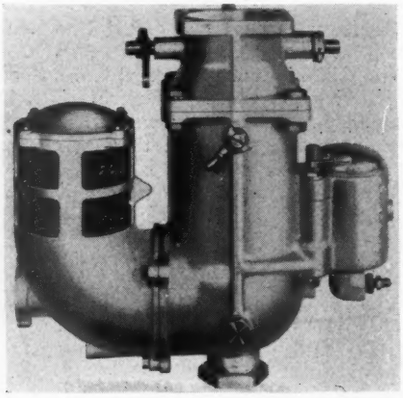


Showing How the Adapter Permits Changing From Solid to Pneumatic Equipment or Vice Versa

Floating Venturi Feature of New Rayfield Carburetor

Beneke & Kropf Mfg. Co., 21st & Rockwell Sts., Chicago, Ill., recently placed on the market a new Rayfield carburetor of a type that may be termed semi-plain tube. It incorporates a variable venturi and a variable jet both governed automatically by engine suction. Another feature is a thermostatically controlled valve that provides cool air for summer operation.

In normal operation gas is fed to the mixing chamber through a double central jet that consists of two concentric tubes. The outer passage, which is between the two tubes and which is fixed, acts as the intermediate speed fuel jet. The inner



View of the New Rayfield Carburetor Recently Announced by Beneke & Kropf Mfg. Co.

passage is the high speed jet and is through the center tube. It is regulated by a metering pin which rises and falls with the venturi valve. Air admitted through a single opening surrounds the jet at the venturi throat.

The suction of increasing speed lifts the venturi valve off its seat, which draws with it the metering pin. This permits the gasoline to flow through the central jet and air to pass up through the central venturi throat. Maximum flow of gasoline results when at full opening the needle valve has risen to its maximum extent. Gasoline passage is then through the central passage as well as through the intermediate speed passage.

For idling, fuel is fed through an auxiliary passage and not through the intermediate speed or high speed jets. The auxiliary passage, which is drilled through the body of the carburetor, connects from the supply of gasoline in the float chamber to a point above the throttle. The air bleed for the idling mixture is provided for in an idling tube, open at both ends, which is inserted in the vertical part of the auxiliary passage. A drilled hole is provided near the upper end of this idling tube. The passage surrounding the idling tube is open to the air through a drilled orifice. This is the source of supply for the idling air bleed. The idling mixture is controlled at the idling jet just above the throttle by an adjusting needle valve screw.

Rich mixtures for easy starting are obtained through a special hand control on the dash.

A thermostatically controlled air valve, which is set at 120 degrees Fahrenheit, automatically provides cold air when necessary. This thermostatic control consists of a plain flapper valve mounted on the end of a piece of thermostatic metal. It functions when the metal becomes warm. Upon becoming warm it tends to curl inward, admitting cold air.

Two filtering screens are provided, one in the gas strainer trap and the other on the intermediate adjustment side of the carburetor. Both can readily be cleaned.

The United Air Cleaner

Engine builders have always realized that dust breathed in through the carburetor causes rapid destruction and deterioration in engine efficiency. Engine users are beginning to understand the havoc wrought by abrasive dust and the industry is beginning to take cognizance of this condition by taking action to correct it.

To better appreciate the agents of damage in air consider that a body of air one foot square and a mile long passes through the combustion chambers of an

Cutaway of the United Cleaner, Showing Passage of Air in Cleaning Process

engine in average operation every hour. The dust in this air is silicon, an abrasive and tests show that there is an astonishing amount of it even under the best conditions. It strikes an oil-wet cylinder wall, wedges between pistons and cylinder walls and gouges its way down into the crankcase oil, where it has access to the bearings and where it grinds.

Another striking indication of the omnipresence of dust in the crankcase was recently brought out by an analysis made by Standard Oil Co. An analysis of nearly a hundred samples of the pasty substance that accumulates in the crankcase has shown that from 90 to 98 per cent of the accumulation consists of dirt, sand and other foreign matter.

All Forms and Styles Are Available, Two of Which Are Illustrated.

The United Manufacturing & Distributing Co., Chicago, Ill., is today providing the industry with an air cleaner, which, when applied to an internal combustion engine, will not reduce the horsepower output. In construction and principle of operation it is of a distinctly new character. It is automatic in action and requires no adjustments.

The United Air Cleaner, by which term it is known, treats 25 per cent more air than the engine needs. The air is brought in at the top of the cleaner, where it is passed over a rapidly revolving rotor. At this point the air is uniformly subjected to a centrifugal force of great intensity. This centrifugal action forces all harmful particles back into the outer air. The clean air which is close to the rotor or at the inside of the whirl is taken up under the edge of the rotor through the turbine (which propels the rotor) and down to the carburetor. Another feature of this device is the fact that after it is once installed no further attention or adjustment is required. Nor does it require cleaning or oiling.

Hi-Speed and Elastic Piston Rings

"Elastic" Piston Rings, made by the Continental Piston Ring Co., Memphis, Tenn., are compounded from a special formula of high grade gray iron of close grain. They are individually cast to assure flexibility and permanence of tension.

These rings are given the turned finish, which facilitates seating and greatly accelerates the wearing-in process. To insure accuracy in the manufacture of

Two Different Types of Hi-Speed Elastic Rings

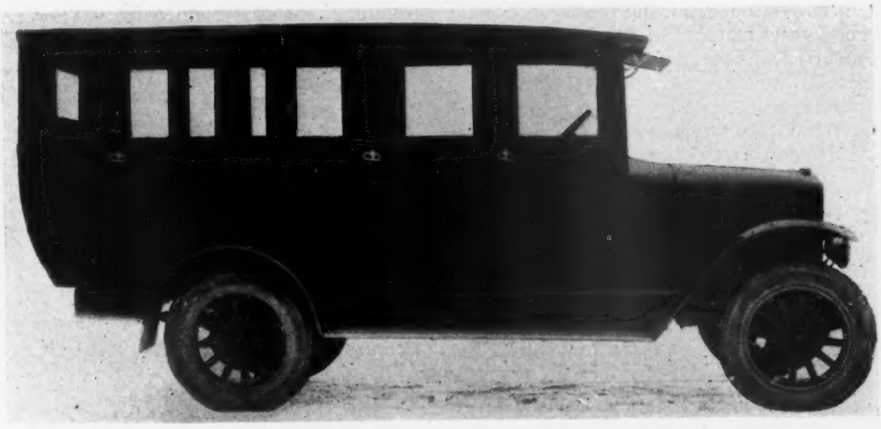
"Elastic" Rings a micrometric standard of .001 is followed. All sizes from 2 in. to 5½ in. diameter up to ½ in. width and oversizes .003 to .060, regular stock. Hi-Speed's (lower illustration) outstanding feature is its diagonal step cut.

Besides being compression tight the diagonal step cut causes each explosion to nudge the ring slowly around its groove. This Hi-Speed Ring is made of close-grained gray iron of special formula. It is individually cast to assure the correct degree of flexibility with permanent and equal tension at all points of the circle.

Prices: All regular and oversizes from 2 in. to 4½ in. diam. and up to ½ in. width, list price, 50c each. 4½ to 5½ in. diam. up to ½ in. width, 60c each.

International Small-Unit Speed Bus

Flexibility is a term that means much to people who travel by bus and who desire speed as well as comfort. To meet this want the International Harvester Co., Chicago, Ill., has developed a new small-unit 12-passenger cross-seat bus mounted on a Model S speed chassis. In its appointments and speed this bus approaches those of the ordinary passenger car. With the cross-seat construction and limited seating capacity, moreover, the bus can be quickly loaded and unloaded and thus readily be sped on to its destination.



Small-Unit, 12-Passenger, Cross-Seat Bus Recently Put on the Market by the International Harvester Company

The makers point out that with a fleet of buses of this type it is easily possible to reroute and to tap twice the usual territory at no increased overhead. The small-unit bus can also be made to supplement large buses, helping to move the rush hour crowds quickly and comfortably and then when traffic lightens to go on the regular schedule and take the place at less expense and greater speed of the larger buses. Such small-unit buses also lend themselves very well for use in fleets of twos and threes in small towns or villages.

Every detail for the comfort of passengers has been carefully planned in the design of this new International small-unit bus. Inside width of body is 64 in. and length 134 in. Thirty inches between the top of all seats gives ample room for passengers. Entrance is obtained through three good-sized doors, the rear door taking care of the two rear seats by means of an aisle between the two. There is one door on the left-hand side for the driver. The seats are attractively upholstered in gray Spanish fabricoid. The length of the chassis overall is 181⅜ in.

Lupton Steel Display Counter

Lupton Display Counters manufactured by David Lupton's Son Co., Phila., Pa., are made expressly for parts departments and accessory shops. The top is steel plate, covered with battleship linoleum, cemented down. The edges are bound with polished brass moulding. As this top cannot crack like glass or dent and splinter like wood, it is ideally suited for the handling of metal articles. It cannot soak up oil, cannot rust and is easily cleaned. An occasional coat of varnish keeps it always fresh. The finish is in velvet green enamel.

The counters are made up in 3-ft. sections, that being the distance between uprights. The linoleum is cut to the desired length. Brass mouldings are cut to length. Standard counters have open backs, but sliding doors are furnished as an extra. These doors may be steel with green enamel finish, or bright aluminum. The aluminum makes a striking display, because of the light it reflects on the shelves.

Lupton Display Counter for Accessories

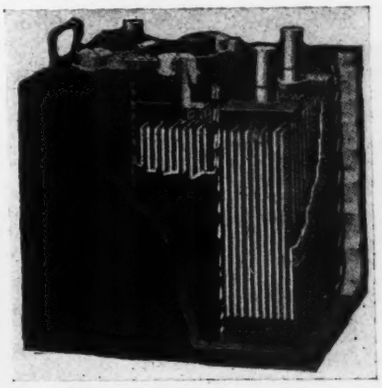
Shunk Takes Over Henderson Hoist Patents

The Shunk Manufacturing Co., of Bucyrus, O., has closed a contract with S. Franklin Henderson, owner of patents on a motor truck hoist, for the exclusive manufacture of the product in Bucyrus. The company plans to manufacture special dump and box bodies, as well as hoists. Benton Hopkins, of Cleveland, is to be superintendent of the Shunk plant.

The hoist is designed so that it can be used on any truck from 2 to 10 tons. The ease with which the dump operates, says the manufacturer, and the ability of the driver of the truck to control the speed with which the truck body elevates and to stop or reverse it at ease, are some of the outstanding features of the apparatus. The hoist is to be marketed through large truck distributors.

Cole Batteries

Examination of the surface of a Cole "Triple-Oxide" plate manufactured by the Cole Storage Battery Co., 2435 Indiana Ave., Chicago, Ill., discloses hundreds of ridges and furrows that cross and recross it in every direction. These corrugations add to the area of the plate, giving it almost twice as much exposure surface as a smooth finished plate of the same dimensions, according to the maker.



Cutaway of a Cole "Triple-Oxide" Battery

The extra hard center of the "Triple-Oxide" plate is claimed to give it unusual rigidity and endurance, and reduce the possibility of buckling.

The surfaces of Cole plates are maintained in a highly porous, semi-soft condition.

Hauling Eggs in Bulk

Every day brings reports of new uses for motor trucks, but the latest and most interesting, as well as novel, work in which a motor truck is used comes from Karise, Denmark, where Axel Broegaard, an egg buyer is using a motor truck to haul eggs in bulk.

The motor truck used was 3,000-lb. capacity International truck loaded with 22,000 eggs which weigh approximately 2750 lb. Mr. Broegaard calls upon about 400 farmers weekly, buying eggs and loading them in his truck. The truck body is the regular express type with high flare boards added.

Between the first nine or ten layers of about 1300 eggs each, Mr. Broegaard places a layer of straw three-quarters of an inch thick. After that no protection is placed between the eggs. It is said that the breakage of eggs carried in this manner is no greater than if they were packed in the regular egg cases used in this country.

Wheel Pioneer Passes Away

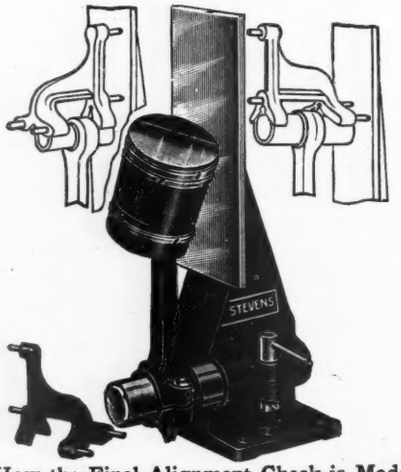
Henry Phineas Jones, one of America's pioneer wheel makers, died at East Orange, N. J., March 17, at the age of 76. He was president of the Phineas Jones & Co., Newark, N. J., having been with the company for 57 years. His father, the late Phineas Jones, was its founder.

Service Station and Repair Shop Appliances

Stevens Improved Piston Aligner

The new Piston Aligner of Stevens & Co., 375 Broadway, New York City, has a special "sea lion" indicator gage. It checks the wrist pin and connecting rod assembly for either twist or bend in the rod. After the piston is attached the final check is made on the broad machined surface as shown.

Another exclusive feature is the clamp that permits of instant change or adjustment of arbors. The aligner is so husky



How the Final Alignment Check is Made With the New Stevens Aligner

that the connecting rod can be straightened while on the arbor. The bearings can be test-fitted on the arbor and the assembled bearings test-fitted without taking them apart. It is guaranteed accurate to .001 of an inch. T-100—universal model, with one arbor, list price, $22.50; T-101—extra arbors, any size, list price, $4.50.

Outslidemikes

Outslidemikes is a micrometer instrument of a steel tape design put out by the Schaap Co., 344 Cumberland St., Brooklyn, N. Y. It measures diameters from 2⅝ in. to 5 in. by thousands of an inch.

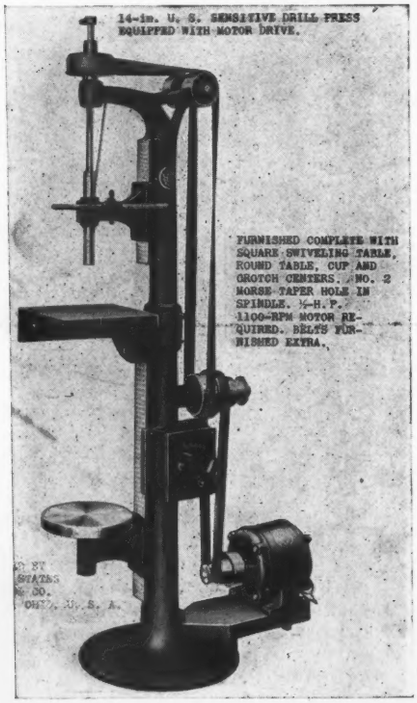
It does the work of a micrometer caliper, though instead of reading decimals it gives direct reading in thousandths and fractions thereof. For instance, if an article should measure 3.3175 by the micrometer caliper, this instrument will give a direct reading of 3 5-16 plus .005. This is convenient to the mechanic who is not well versed in decimals. The graduations are quite legible, being about ⅛ of an in. apart.

Employment is simple. The instrument is wrapped tightly around the object with the two scales abutting each other. If the arrow matches a line exactly then the article is of standard size of the dimension given on the lower scale. If not the first line that matches will indicate the thousands oversize. This micrometer cannot be affected by heat or cold and its one piece construction eliminates faulty adjustments. Being compact it can be easily carried in the kit or pocket. The retail price is $1.25.

A New and Simple Way of Making Measurements Even in Thousandths

Fourteen-Inch United States Sensitive Drill Press

The United States Machine Tool Co., Cincinnati, Ohio, is offering a floor drill that is described as a strong and rigid machine designed to drill holes ½ in. and


14-in. U. S. SENSITIVE DRILL PRESS EQUIPPED WITH MOTOR DRIVE.
FURNISHED COMPLETE WITH SQUARE SWIVELING TABLE, ROUND TABLE, CUP AND CROTCH CENTERS. NO. 2 MORSE TAPER HOLE IN SPINDLE. ½-H.P. 1100-RPM MOTOR REQUIRED. BELTS FURNISHED EXTRA.

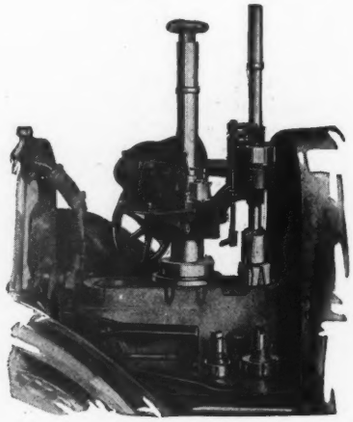
United States Fourteen-Inch Floor Drill

smaller quickly and accurately. The machine is regularly furnished with two tables, cup and crotch centers and countershaft of standard construction, and it can be equipped with motor drive, as shown above. A ½ hp. 1100 r.p.m. motor is required. Belts shown on the cut are not included unless ordered.

Cylinder Stormizing

Stormizing is a registered trade name given a new process of refinishing or remachining engine cylinders introduced by the Storm Mfg. Co., 406 Sixth Ave., South, Minneapolis, Minn.

Stormizing machines are claimed to give the service shop a factory method that enables them to take care of the wide range of work that is encountered with economy, speed and efficiency. They are made in three models. The Semi-Portable or medium-sized machine, illustrated here-



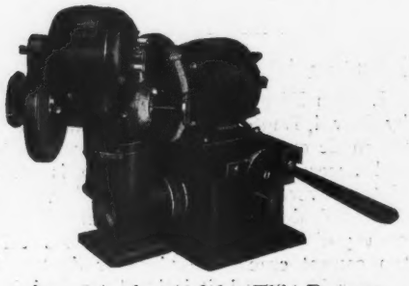
Mounted for Refinishing or Remachining a Cylinder

with, is specially suited for the average sized shop. It has a heavy machined base, although it can be quickly dismounted from the base and used as a portable machine for reboring engines in the chassis.

All Stormizing machines are said to be entirely self-centering and automatic in operation. They are simple to operate and accurate in their results.

Fleming Valve Grinder

This tool, states the manufacturer, the Fleming Machine Co., Springfield, Mass., holds the valve firmly and grinds it in the true running position of the engine. It grinds the reamer to ream the seat in the engine block. By its use both valve and reamer are ground to a master angle, according to the maker.



Accuracy Assured by This Process

The reamer is ground to the exact angle of the valves, therefore, any seat finished by the reamer will be the same angle as the valve. Specifications: Grinding wheel, 6-in. diam., ⅜-in. face; chuck capacity, ¾ in. round; wheel motor, ½ hp., work head motor, 1-20 hp.; shipping weight, 100 lb., approximately.

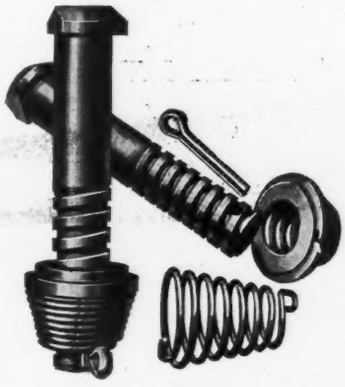
The machine is regularly furnished with one chuck, one truing diamond, one reamer attachment and wrenches.

Jiffy Automatic Connecting Rod Bolts

The Jiffy Automatic Connecting Rod Bolts produced by the Mohawk Sales Co., 21 E. Van Buren St., Chicago, Ill., automatically take up wear of the connecting rod bearings.

They are easily installed as follows: The bearing cup is filed or ground so that there will be one-sixteenth of an inch clearance between the bearings. The Jiffy bolts are then installed. The nut is turned and adjusted with the fingers, and the space between cap and rod on either side of the crankshaft is equalized. The cotter key is placed in the loop of the spring, the latter is given one turn to the right, and the cotter key is placed in the bolt.

List price, $3.50 per set of eight, retail.

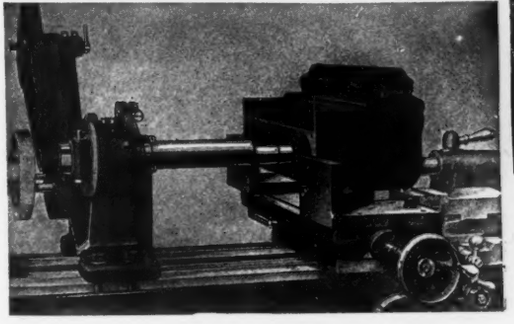


Connecting Rod Bolts That Facilitate Repairs

Kellenberger Service Products

L. Kellenberger & Co., 120 Rutgers Ave., Jersey City, N. J., recently announced to the trade two new products for the service shop. The "Planet" Cylinder Grinding and Boring Attachment for lathes from 15 in. swing up is featured by the precision in design and construction of the attachment. The body is cast iron, the important moving parts and gears are high grade steel and phosphor bronze, and the ball bearings are S. K. F. make. The adjustment for eccentricity is provided to .0005 and the guaranteed precision is .001 in. By the same eccentricity the boring head is adjusted and the smallest cut can be taken. The attachment grinds diameters from 2⅛ to 8 in., and is made with a grinding length of either 12 or 16 in. The taper nose of the grinding spindle is adjustable to a minimum of ½ in. in diameter and a maximum of 4 in. in length on both sizes of the attachment.

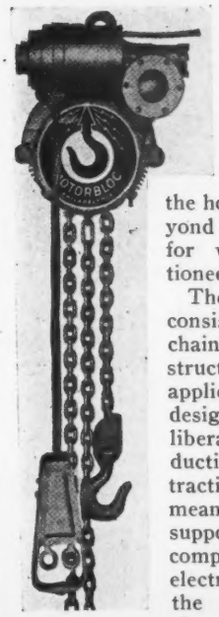
The other product known as the "Duplex" Crankshaft Grinding Machine, and illustrated herewith, can be used on any medium or larger lathe. It is easily and quickly mounted on the slide rest of the lathe. Crankshafts of any type, with short pins, even down to 1⅜ in. in length can be ground rapidly and accurately. Simple construction and manipulation and high precision workmanship are its primary characteristics.



Left: The Planet Cylinder Grinding and Boring Attachment for Lathes From 15 in. Swing Up. Above: Kellenberger Duplex Crankshaft and Grinding Machine.

Motor-Driven Chain Hoist

Motorbloc Corp., Summerdale, Phila., Pa., has placed on the market an electrically operated material-handling device known as the Motorbloc, which is a rugged, and readily portable hoist, that can be installed where electric current is available. Its self-contained pendant controller permits convenient operation.



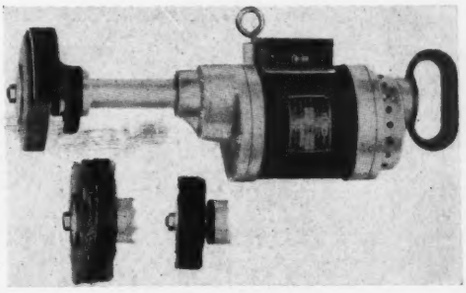
In its design great care has been exercised to avoid stressing of the hoisting mechanism beyond the loads and speeds for which it is proportioned for hand operation.

The Motorbloc, its name, consists of a standardized chain hoist of steel construction, electrified by the application of a specially designed heavy-duty motor, liberally proportioned reduction gearing and slip traction clutch, applied by means of a malleable iron supporting bracket, thus comprising a self-contained electrifying unit, to which the pendant controller is also attached. In this way a simple, rugged mechanism has been developed for the electrification of the Standard Spur-Geared Chain Hoist in capacities ranging from ¼ to 10 ton, proportioned to stand up under severe overloads and abuse.

The armature shaft and worm are carried in heavy-duty ball bearings and liberal provision has been made for adequate, automatic lubrication. The self-contained, pendant controller is easily operated by the fingers of one hand, leaving the other hand free to guide the load. Weight of 1-ton size, complete, 140 lb. While regularly furnished as a complete hoisting device the self-contained electrifying unit can be readily applied to standard chain hoists already in service.

Temco Grinder and Buffer

The Temco Grinder and Buffer is a new piece of shop equipment but recently added to the line of the Tempco Electric Motor Co., Leipsic, O. It is designed essentially for repair shops, garages and service stations.



Showing the Temco Grinder Complete With Two Extra Buffers

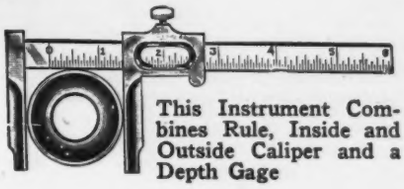
This equipment is useful for buffing, polishing, grinding, cleaning, etc., and can be taken to the work or suspended anywhere. The spindle is offset for close quarters and ball-bearings are used on the armature shaft and spindle.

Stevens Universal Calipers

Stevens Universal Calipers, put out by the Stevens & Co., 375 Broadway, New York City, embody four useful features, namely, an accurate rule, inside calipers, outside calipers and a depth gage.

They are of simple rugged construction to withstand rough service without affecting their precision. The jaws are hardened. The large, clean cut and clear figures of the scale make them easy to read.

The scale on the front for inside and outside measurements is divided into 16ths of an inch, which, with the vernier on the slider, gives readings of 32nds, 64ths, 128ths. The reverse side, for measuring depth, is divided for direct reading of 32nds. Prices: 4-in. scale, $4; 6-in. scale, $4.50; 8-in. scale, $5.



This Instrument Combines Rule, Inside and Outside Caliper and a Depth Gage

RUGGLES

Right in 1922— Now Another Forecast

IN April 1922 the Ruggles Motor Truck Company published an advertisement in this publication that said: "Ruggles dealers are equipping themselves for *the increased truck demand that is surely coming.* The business world thinks more of value than it has thought for years. It demands trucks that combine high quality and low price."

This statement was made when the business sky was dark. Many disbelieved it. Others accepted it and are now prosperous Ruggles dealers.

But history confirms the prophet. 1922 was a record-breaking year in automotive production.

Further—as predicted, value became the dominant sales point. Ruggles dealers dominate because they offer the greatest value for the money.

These dealers are firmly established and are ready for the increased prosperity that is now whistling for

The World's Greatest Truck Value

THIS SYMBOL IN ANY ADVERTISEMENT MEANS: SEE "CHILTON AUTOMOBILE DIRECTORY" FOR COMPLETE BUYING INFORMATION

TRUCKS

the crossing. If you doubted in 1922 believe us now.

We now predict that motor truck sales in 1923 will eclipse those of 1922. This is not a guess or an opinion but is a formal forecast based on figures on file in this office.

Ruggles dealers will get a large share of this business because we have anticipated the situation and are prepared for it.

Ruggles dealers have the advantage of price, quality, service, appearance. They are supported by a financially sound factory. They have the sales help of an aggressive organization.

If you have the vision to see the wisdom of what is here said, you are the type of man who can profitably sell Ruggles Trucks. In this case we invite you to write or wire us for complete details.

RUGGLES MOTOR TRUCK COMPANY
SAGINAW, MICHIGAN
Canadian Factory: Ruggles Motor Truck Co., Ltd., London, Ontario

RUGGLES MOTOR TRUCK CO. RUGGLES SAGINAW, MICH. U.S.A.
This Emblem Stands for Quality

The World's Greatest Truck Value

THIS SYMBOL IN ANY ADVERTISEMENT MEANS: SEE "CHILTON AUTOMOBILE DIRECTORY" FOR COMPLETE BUYING INFORMATION

"Looking Ahead" on Motor Highways

(*Continued from page 25*)

those highways which constitute the great arteries of travel. In order to let the public know we speak of a new type of highway to meet the new requirements of modern motor equipment we must give it a new name. Let us call them **motor truck trunk line highways.** Then possibly people will realize that we do not refer to improved dirt roads.

Millions of dollars are now spent annually by municipalities, counties, states and the federal government for roads. Most of this has gone to improve existing routes. When a new railroad is projected, the engineers that locate it do not feel it necessary for them to parallel the old high roads. On the contrary they strive to find the most direct route with the lowest grades and the easiest curves connecting the great centers of population —or of production and consumption, between which great tonnages will be exchanged. So must it be with our new highways.

There must be a comprehensive plan for the entire country. The national and state projects must conform. The county roads and those of municipalities must tie into this system.

The railroad engineer is constantly talking of his "ruling grades," that is, the steepest grade on his line—the section that limits the number of cars a locomotive can haul. The question of grades has received scant consideration in the past where highways are concerned—but as we will soon come to tractors and trailers—with the trailers controlled by air brakes operated by the chauffeur, the question of highway grades and curves is of great importance.

To Circle Cities

Where these motor truck trunk line highways encounter cities they must never pass their traffic through the community—but must take it around on **motor truck trunk line belt-lines.**

Where traffic is destined to a city the main highway must not merely go into the city and connect with its streets. Cities must be circled by one or more systems of truck line belt-lines so that trucks may reach any part of the community without going through its congested central districts.

Do not think that these highways can be at the street level where they center or circle a city. A grade crossing on an intensively used motor highway is more dangerous than a railroad grade crossing. Truck traffic must be on viaducts or in sunken roads. This is necessary both to expedite the through traffic and to safeguard pedestrians and local traffic.

The construction of these ways—their width—with what they shall be surfaced and other such matters are questions we need not take up here.

Finally let it be clearly realized that facilities without service are almost worthless. Highways must be operated. The way military motor transport was passed over the roads of France showed the wonders that can be accomplished.

Motor traffic must be dispatched just as trains are dispatched on a railroad. It is very simple and the results are a joy to all. The rules about not stopping on the highway so as to block traffic—the orders not to pass around any moving truck ahead—all this makes it possible for an enormous tonnage to be moved over highways with satisfaction and dispatch. There must be telephone service available every little way along the route and a wrecking and repair service provided.

Finally let it be understood by all that the new conditions require facilities and new service and that what is needed is not more money for highways, but the spending of the regular appropriations in accordance with a comprehensive plan. A campaign of public education along these lines is in order.

Attractive Window Displays Still Valuable

ACCORDING to the manager of the Reo branch, at Kansas City, Mo., the first requisite of a good window display is that it shall attract attention. It is because of this conviction that this company makes its windows present from week to week some unusual features or some ordinary feature presented in an unusual manner. The power of attractive display has been responsible for many a sale and it still is.

In presenting the passenger cars it has been found that the unusual is of equal value in attracting attention. A recent display showed a Reo car with the doors standing open. A test was made with the same car—doors open and doors closed—and it was found that fully twice as many people stopped to look at the car with the open doors. Aside from the Wilson company then it is good enough for him.

How One Dealer Attracts the Attention of Passersby

It is the custom of the window trimmer to change the display at least once a week—one week the main feature being the Reo trucks and the following week the Reo cars. In displaying the trucks it has been the custom for a month or more to display one of the company's vehicles, loaded with the products of one of the firms that use the Reo truck. In the accompanying picture the load is made up of the products of the Wilson Packing Co. It has been found that where the ordinary passer-by would not pay any particular attention to the unloaded truck he will stop and examine the loaded one.

Aside from the impression he gets from the display as to the truck itself he is further impressed with the fact that one of the big packers has examined the truck and found that it was a good buy and has stocked up with it. This suggests to him that if it is good enough for the fact that this plan made more people examine the car it also was valuable in getting them to look into the car and see for themselves the attractive covering and the comfortable arrangements of the seats.

Motors Metal Manufacturing Co. Elects

At the annual meeting of the Motors Metal Manufacturing Co., of Detroit, Mich., the following directors were elected: Chas. R. Talbot, Willard Pope, Wm. Christian, Geo. Roehm, Geo. G. Harris, Robert McMath, F. C. McMath, L. N. Allen, H. A. Burnett. Officers of the company were elected as follows: President, Chas. R. Talbot; vice-president, H. A. Burnett; treasurer and general manager, Wm. Christian; secretary and assistant manager, Robert McMath.

The Wheels are made of rolled steel

Bethlehem Wheels are standard equipment on PIERCE-ARROW TRUCKS

SEVERE tests, conducted by both truck manufacturers and ourselves, have amply demonstrated the rugged serviceability of the Bethlehem Wheel.

It is the Bethlehem Wheel's rolled steel construction that gives it tremendous strength united with light weight and resiliency.

And it is that rolled steel construction that is the source of the satisfactory way in which the Bethlehem Wheel is meeting the exacting requirements of every class of modern truck service.

BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.

SALES OFFICES IN THE FOLLOWING CITIES:

New York Boston Philadelphia Washington Pittsburgh Detroit St. Louis Baltimore Atlanta Cleveland Buffalo Chicago San Francisco.

BETHLEHEM

ROLLED STEEL TRUCK WHEELS

THIS SYMBOL IN ANY ADVERTISEMENT MEANS: SEE "CHILTON AUTOMOBILE DIRECTORY" FOR COMPLETE BUYING INFORMATION

Do You Know Why the Selection of Engine Lubricant Based on Mileage is Unsound?

This Non-Technical Treatment of a Problem Vitally Affecting Owner Interests is Valuable Information for the Dealer, Salesman and Repairman Alike

Knowledge of This Nature Helps in Your Relations With Prospects

By A. B. DAWSON, Lubricant Engineer General Motors Corporation

IT is a common practice for the repairman, the garageman and even the engineer who has not given the situation special attention, to recommend the use of heavier bodied oils for engines, which have seen considerable service, with wear and consequent enlargement of clearances.

If we apply the acid test of scientific analysis to this practice, we find that it is based on false assumptions.

The first of these is: "Wear is uniformly progressive and is in proportion to the mileage of the automobile, the engine clearances being minimum when the engine is new."

Considering only the piston clearances and neglecting, for the moment, the piston rings, it is true that clearances are minimum when the engine is new.

But wear on piston clearances does not cause enlargement at a uniform rate. On the contrary, clearance enlargement is comparatively rapid with the new piston working against the new cylinder. This is due to roughness of the surfaces which induces abrasive action. This enlarging slows up and proceeds at a greatly retarded rate, however, when sufficient material has worn off to leave the surfaces in a highly polished condition.

Piston clearances cannot be considered separately and aside from piston ring fits—that is, the seating of the ring against the cylinder wall and the fit of the ring in the ring groove. Both of these play a more important part in determining the "gas-tightness" of the piston than does the actual piston clearance.

Rings and Gas Leakage

Ring fits are peculiar. With the average car, the ring, as originally fitted does not seat perfectly and there is a tendency toward gas leakage, which must be minimized by the use of an oil of sufficiently heavy body and proper character to seal the piston rings effectively.

Likewise, the groove fits cannot be made perfect by practical production methods. So there is also, in the new engine, a marked tendency for gas to leak around the back of the ring. Furthermore, there is a tendency for rings to stick in their slots when they are tightly fitted in new engines.

As wear progresses, the rings work to a perfect seat on the cylinder wall. Rough spots are smoothed from the contacting ring and ring slot surfaces and the work which the oil is called upon to perform, in effecting a piston ring seal, is considerably lessened.

When perfect ring seating has been attained through this wearing process, the engine is in fine condition, capable of developing its maximum power and of accelerating to best advantage. During this stage, wear and enlargement of clearances take place at a comparatively slow rate, depending largely on the care with which the engine is treated.

When the Film is Helpless

A point is reached, after some considerable time, at which enlargement of the piston ring slot clearance permits excessive up and down motion of the piston ring in its groove. The effect of such piston ring looseness is that on the compression and power strokes the gases force their way in behind the ring, displacing the oil film and thus escaping past the piston and down into the crankcase chamber.

When once the piston ring slot clearances have enlarged sufficiently for the ring to possess perceptible up and down movement, the pounding action of the ring on the sides of the slot tends to increase the enlargement at a very rapid rate, aggravating the tendency of the engine to "blow-by" and to "oil-pump."

To summarize it is quite evident that the enlargement of clearances does not take place on any engine at a uniform rate in proportion to service. As a result of the progressive changes that take place in piston ring fits, gas-tightness of the piston on any engine varies with the engine's age in three definite stages as follows:

1. **Engine new:** Ring seats poor. Piston not fully gas-tight. Oil completes seal.
2. **Engine well run in:** Piston rings properly seated. Piston gas-tight. Oil assists in maintaining gas-tightness.
3. **Engine worn:** Excessive piston rings slot clearances. Piston not gas-tight. Ring clearances too large for effective oil sealing.

During the first stage there is recommended an oil of ample body and proper character to bridge the slight clearances prevailing and to provide an effective piston ring seal.

This same oil, naturally, is of proper body and character for correct piston, cylinder wall and piston ring lubrication throughout the second stage.

In the third stage, however, the pounding action of the rings has so enlarged the clearances that the ring itself is no longer effective in helping to keep the piston gas-tight. The clearances have become so large that no oil, however heavy, or of whatever character, can be expected to hold back the gases and prevent "blow-by."

The second false assumption is:

"Wear takes place at substantially the same rate in all engines, so that lubricants suitable to take care of an engine at any period can be determined solely from the mileage covered by the automobile."

This assumption ignores entirely the fact that there are wide variations in materials used for cylinder, piston and piston ring construction; differences in manufacturing processes; differences in ageing or heat treatment afforded these parts;differences in the care which individual owners give their cars.

Yet it is clearly evident that each of these factors largely affects the rate with which wear takes place and this fact makes the mileage basis for determining the proper lubricant very inaccurate.

Why Such Determination is Unsound

One manufacturer, for instance, uses grey iron castings and "weathers" his cylinder blocks; another uses semi-steel castings and heat-treats the blocks to eliminate internal stresses and tendency to warp. Piston rings in one case are made of comparatively soft metal in order that they may work rapidly to a proper seat, while in another case they are made particularly hard and lapped to a fair seat before the engine is turned out of the plant. Cylinder walls are ground to a finish in some cases, rough bored and reamed in others. The difference in the character of surfaces left by these two processes is great and its effect on determining the rapidity with which wear will

ROSS
Cam & Lever Steering Gear
Patent Pending

Lower end of gear, with side of housing removed, showing lever in mid-position on the cam.

Inside view of side of housing, showing end of trunnion shaft lever arm and diamond stud, with arc of lever action.

Housing entirely removed, showing variable pitch of the thread of the cam and relation of cam and lever in mid-position.

Cam and lever in extreme position, showing the swing of the steering arm. Variable pitch of cam also plainly shown.

This new steering gear is so radically different in principle and design that many engineers were frankly skeptical about our claims for it. However, demonstrations have convinced them and they are now enthusiastic over this wonderful combination of small size and simple construction with power, reliability and easy steering.

The gear is so irreversible in mid-position that practically all road shock is eliminated. The long lever arm inside the gear provides the easiest kind of steering under all conditions and the car holds the road with the least effort on the part of the driver.

The variable pitch of the cam offers a unique accelerated action which facilitates quick handling in making turns and in swinging back into flat-to-the-curb parking position.

Adapted for passenger cars, motor trucks, motor buses, fire trucks and tractors. Write for special information desired.

ROSS GEAR & TOOL COMPANY
760 Heath St. Lafayette, Indiana, U.S.A.

ROSS STEERING GEARS

THE STEERING GEARS THAT PREDOMINATE ON MOTOR TRUCKS

THIS SYMBOL IN ANY ADVERTISEMENT MEANS: SEE "CHILTON AUTOMOBILE DIRECTORY" FOR COMPLETE BUYING INFORMATION

enlarge the clearances is marked. Some owners take no care whatsoever of their engines; they neglect to clean out carbon and to change the crank case oil, and they drive under conditions which cause most rapid wear; others adopt the opposite plan and treat their engines with care which reduces wear to the minimum.

Any system aimed at determining the proper lubricant, which considers simply the mileage which the car has covered, must yield results wholly inconsistent and not to be relied upon.

The third false assumption is:

"The piston clearances and ring fits alone determine the choice of the proper oil."

It has been shown repeatedly that, whereas the correct oil must of necessity be of ample and proper character in order to seal the piston rings against gas leakage, there are three other equally important factors which should be considered in selecting a proper oil.

The first is the heat condition as determined by the type of service, the type of cooling system employed, the cylinder dimensions, the valve arrangement and other engine details which have a direct effect on engine temperatures.

The second is the ability of the lubricating system to handle oils of varying body. It is well known that certain lubricating systems lend themselves better to the distribution of light-bodied oils, while others work best with oils of medium or heavy body. In some lubricating systems, the employment of heavy-bodied oils may prove disastrous, because of lack of distribution under certain operating conditions.

The third factor, and one of extreme importance from the car owners' point of view, is the carbon condition. Some engines will not pump enough oil into the combustion chambers to create an objectionable carbon condition regardless of the character of the lubricant employed. Other engines will pass considerable oil and a light or medium-bodied lubricant must be employed to minimize carbon formation.

The fourth false assumption is:

"The use of a heavy-bodied oil in engines that have worn excessively will correct oil-pumping."

We have shown heretofore that the use of a heavy-bodied oil, after excessive wear has taken place, cannot be expected to check gas leakage and seal the piston rings.

It is often forgotten that all mineral oils approach constant viscosity as the temperature is increased. At 400°F., the body of the heaviest mineral oil for motor use is not perceptibly heavier than the body of the lightest.

When highly heated gases leak past the piston, due to increased clearances, excessive piston heating is inevitable. The piston temperature under such conditions will range well above 400°F. even on the skirt, so that where a blow-by exists, the bodies of all oils will be on a par with each other in their value for the maintenance of a piston ring seal and the tendency of the engine to pass oil or "oil pump."

Where heavy-bodied oil is used to correct oil pumping in worn engines, the net result is a greater accumulation of carbon deposit. Because of the character of heavy-bodied lubricants, the quantity passed is not perceptibly lessened, while the clean-burning character of the lighter-bodied oil is lacking.

Summary. We find that the selection of engine lubricants on a mileage basis is unsound because:

1. Clearance enlargement is not proportional to the car mileage.
2. Rate of clearance enlargement is not constant for all engines. It is on materials used; their treatment during manufacture and the treatment accorded the engine in service.
3. Selection of the proper oil does not depend wholly on the clearance. Temperatures, oil distribution and carbon condition must be considered.
4. When excessive enlargement of clearances has occurred, no oil, regardless of body, can seal the piston rings. The use of an oil of heavy body, under conditions where oil pumping is inevitable, simply results in carbon formation.

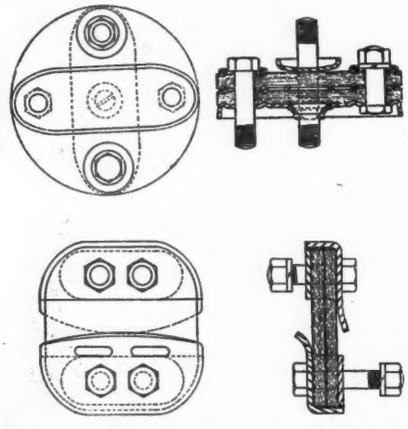
The proper procedure, in selecting lubricants, is to use the heaviest oil permitted under the four basic factors which must be evaluated—temperature, clearances, carbon and distribution.

Such an oil will provide an adequate piston ring seal when the engine is new and throughout the range of its usefulness until it becomes necessary to refit the pistons and piston rings.

The Belflex Fabric Spring Shackle

An innovation in spring construction is the recently announced fabric spring shackle now being produced and marketed by the Belflex Corp., 366 Madison Ave., New York City. This new shackle, known as the Belflex, is designed for both passenger and commercial cars and is constructed, as indicated by the title, of fabric. The accompanying illustrations show installations on various types of springs, as well as cross-sectional views, which are self-explanatory.

The tension shackle at the rear ends of springs is supplied in various sizes to fit any weight of vehicle. The pivot shackle, which is used at the front ends of springs, is designed to take the twisting action produced by uneven deflections away from the main leaf of the main spring, thereby giving the spring greater flexibility and life.



End and Section Views of Shackles

The lower sketch shows the tension shackle and the upper illustration shows the pivot shackle which is used at the front ends of springs

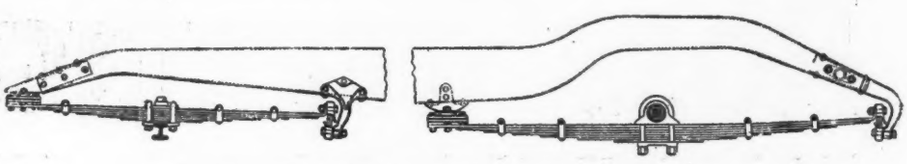
An important constructional feature is the elimination of spring eyes and eye forming operations, which not only simplifies spring assembly, but reduces their cost as well. The frame brackets, which are specially designed for either passenger or heavy-duty truck service, are strong, light, inexpensive and easy to install. Briefly, Belflex equipment is adaptable on all types of spring suspension including cantilever, ¾-elliptic, and platform springs.

This equipment is also stated to achieve, without increased cost to the average manufacturer, the elimination of from twelve to eighteen lubricating points from the average chassis; elimination of metallic contact between sprung and unsprung parts of a vehicle, insulating them with noiseless fabric; freer spring action; and longer life to the springs.

No adjustments for wear are necessary and installation is easy and cheap from both the production and renewal standpoints.

Buses Storm Arizona City

A press dispatch from Phoenix, Ariz., states that the arrival of two new 19-passenger buses caused more excitement than when the first airplane passed over that city several years ago. These buses were delivered to a local transportation company for service between Phoenix and the Globe-Miami mining towns.



Illustrating the Installation of Belflex Shackle Equipment

These sketches show two types of semi-elliptic installations. The cantilever and three-quarter elliptic installations are equally as adaptable

FIVE VITAL REASONS FOR RUSSEL AXLES

There are five characteristics of motor truck axles which are essential to full value; and Russel Axles alone give all five in full measure:

1. The double reduction, internal gear drive gives the same high efficiency, irrespective of road surface, grade or load.
2. The carrying of all load on a chrome nickel, dead axle gives surplus strength without load strain on driving parts.
3. Russel Axles are so simple in construction that any good mechanic can satisfactorily service them.
4. The construction is such that the road clearance is several inches greater than that of any other style of axle.
5. The low unsprung weight insures longer life to the tires and to the whole mechanism.

There is a Russel Axle for every truck—double reduction, internal gear for heavy duty work and spiral bevel for speed trucks. Let us send you specifications and full data.

RUSSEL MOTOR AXLE COMPANY
Division of McCord Mfg. Co.
DETROIT, MICHIGAN

Service Stations and Parts Stocks in Principal Cities

Russel
MASTER OF ROAD AND LOAD
TRUCK AXLES

THIS SYMBOL IN ANY ADVERTISEMENT MEANS: SEE "CHILTON AUTOMOBILE DIRECTORY" FOR COMPLETE BUYING INFORMATION

White Has New Detroit Staff

A number of men active in the truck selling field have been announced as constituting the staff of the new White truck distributor for Detroit and vicinity under the supervision of John H. Thompson.

W. A. Casey, who will be sales manager, has had charge of the Packard truck sales in the Detroit branch, as well as technical service experience in the Packard factory. George D. Wilcox, general manager of maintenance, has had 21 years' experience in the automotive industry, including service with the Commerce Motor Car Co., Detroit, where for three years he has been general manager.

G. F. Clear, manager of the used truck department, who has been in the truck selling field since 1911, has been associated with Packard, White and Pierce-Arrow. H. H. Klumpp, who is service manager, is part owner of the Better Auto Service Garage and for ten years was with Federal in Detroit.

N. A. C. C. Figures Show Ripe Field in Farms for Trucks

A recapitulation of the results of the farm survey recently made by the National Automobile Chamber of Commerce in cooperation with the Departments of Farms and Markets in the various states, has been published by the N. A. C. C. at the direction of F. W. Fenn, secretary of the National Motor Truck Committee. These figures shown below give an excellent picture of the latest possibilities in the farm field for the truck dealer.

Hoosick Engineering Now in Production

A newly incorporated organization, the Hoosick Engineering Co., Inc., Hoosick Falls, N. Y., are now in production on a line of standard ignition parts. The company is planning to bring out a number of automotive accessories. The company officers are: Forrest H. White, president; Ezra Tiffany, vice-president and Salem H. White, secretary and treasurer.

The Horse Passeth

To speak of the passing of the horse is not idle garage talk in Colorado. In 1917 there were 380,000 horses in Colorado, and in 1921 there were 335,000 a decrease in four years of 45,000 or 11,250 a year. In 1917 the number of trucks in the state were negligible, but in 1922 there were 10,829. Passenger car registration rose from 66,850 in 1917 to 136,336 in 1921.

Williams an Officer of A. M. A. of New York

S. M. Williams, manager of the Autocar Sales & Service Co., 23rd St., New York City, has been elected second vice-president and a member of the board of directors of the Automobile Merchants' Association of New York. Mr. Williams will represent the truck interests in his new capacity.

	Number of Counties in State	Number of Farms in State	Number of Trucks on Farms	Number of Counties Stating Need for More Trucks	Number of Counties Preferring 1 to 2-Ton Trucks
New York	42	50,713	6,118	31	29
New Hampshire	8	15,772	535	7	5
Idaho	18	33,864	1,034	14	13
Colorado	19	25,412	3,650	13	16
Tennessee	24	....	772	11	20
New Mexico	19	17,133	1,320	12	16
North Carolina	41	94,377	2,138	30	39
Rhode Island	2	3,500	1,350	1	1
Maryland	21	....	2,817	..	20
Pennsylvania	56	186,863	12,631	43	50
Virginia	37	70,589	1,937	25	35
Michigan	36	81,495	2,572	31	31
Kansas	30	50,068	4,234	15	29
Mississippi	18	27,650	1,518	15	28
Connecticut	4	10,519	3,900	3	3
South Carolina	14	44,800	1,982	11	12
Wyoming	7	4,646	417	5	3
Utah	12	11,283	310	8	9
Kentucky	34	86,560	223	17	18
Illinois	27	59,255	2,694	18	25
Wisconsin	27	72,907	4,761	18	23
New Jersey	14	18,129	4,360	11	13
Delaware	2	4,300	200	2	2
Arizona	7	9,590	589	5	5
California	13	24,729	1,463	7	10
West Virginia	29	48,360	1,435	17	25
Ohio	34	91,862	4,976	27	31
Missouri	114	....	13,803	..	..
Oklahoma	42	114,192	2,563	34	39
Massachusetts	7	11,546	2,905	6	6
Vermont	10	22,483	1,795	5	10
Oregon	14	22,567	1,630	6	10
Montana	18	34,625	3,308	15	16
Minnesota	38	80,021	3,325	27	32
Georgia	80	117,131	7,297	59	71
Texas	48	86,839	4,079	32	46
South Dakota	18	26,003	2,883	10	15
Washington	12	17,763	2,014	7	10
Nebraska	16	25,009	1,835	7	16
Nevada	4	1,588	247	2	4
Louisiana	17	28,172	1,048	15	13
North Dakota	11	16,507	998	6	11
Indiana	41	80,531	4,573	23	35
Florida	16	21,252	3,953	13	14
Maine	8	....	337	..	..
Iowa	42	80,415	7,318	16	39
Alabama	67	256,060	2,461	60	58
Totals	1,218	2,187,080	138,308	740—61%	954—78%

Oregon Distributor in New Location

The Roberts Motor Car Co., Portland, Ore., a pioneer concern in the truck industry, now distributors of the Federal and Republic lines, are located in their own new building, 325 Pacific St. Announcement is made that service can be obtained on all makes of trucks. The approximate investment, exclusive of equipment, etc., is $60,000. The building is one story, occupying the entire half of one block, close to 500 ft. on the east, south and west sides of the structure is glass, twenty-two overhead skylights is a part of the light-giving features. The latest designed overhead rail mechanism to facilitate handling heavy work has been installed. Lockers, and lavatories, shower baths are provided for employes. H. K. Ruthrauff, recently with the Kelly-Springfield organization, Kansas City, is a member of the retail sales staff. A. T. Steiner, of Salem, Ore., has joined the wholesale force.

Heil Company Chicago Offices in Former Location

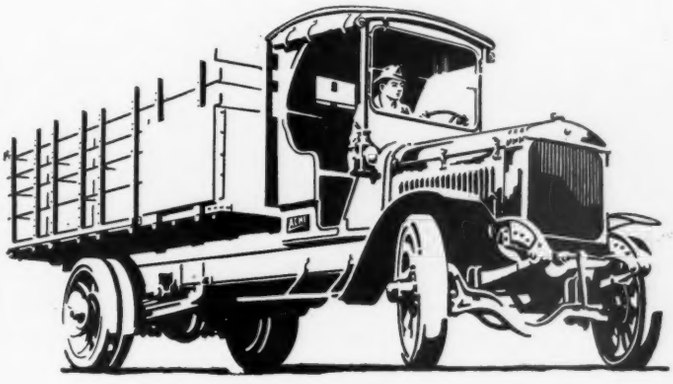
The Chicago offices of the Heil Company have been moved from their former location 2718 Wentworth Ave. to their new place 2422-26 Cottage Grove Ave. The new service and sales room of the Chicago Heil distributors has three times more floor space than the old offices.

According to H. F. Kneppreth, manager of the Chicago branch, the Heil line of truck equipment is enjoying a brisk business in Chicago. He says there is a very great demand in Chicago for the Hydro Hoist. Mr. Kneppreth is assisted by Joseph Wais. The Heil Company, of Milwaukee, has established daily truck service from Milwaukee to Chicago. This service enables customers to get immediate delivery on their orders.

The home office of the Heil Company has also announced a change of address in the New York Distributing Station. The Motive Parts Corp., Heil distributors in New York territory have moved from 136 West 55th St. to their new offices 796 10th Ave., near 53rd St. The H. P. Wilson Co., of Denver Colo., has recently been engaged as the Heil distributor in that district. The office of the Wilson Co. is at 17th and Blake Sts. They are able to give complete service on all Heil equipment.

American Express Buys More Electrics

During the New York Electrical League luncheon held March 21 in New York City, E. E. LaSchum, general superintendent of the American Railway Express Co., announced that he had just ordered 25 electric trucks to be used in San Antonio, Tex. He also stated that he would entirely electric motorize his fleet in Texas, doing away with all horse drawn trucks. This is the twenty-seventh city in the country in which electric trucks of the American Railway Express Co. are being used, bringing the total being used by this company to approximately 1500.



YOU should learn about

This Acme Opportunity

There still are choice territories where the Acme Truck Franchise is open—where we will grant exclusive selling rights to established dealers or other responsible business men.

If your territory is still open, get particulars about this great opportunity. Learn how we will help you to build a good, profit-earning business on this ready-selling truck line.

The Acme Franchise is unlike any other ever offered. It will give you remarkable advantages. It is a constructive program—pledging full co-operation in finding prospects, closing and financing, with an after-sale service that means *more* sales.

The Acme's salability and dependability have for years been demonstrated in every corner of the country. Proved units and Acme Proved Construction have won the Okeh of dealers and owners. There are ten models—from speed truck to one with a load capacity of 12,500 pounds.

If you desire to secure exclusive selling rights in your territory, write now for complete information.

Entire Town Moved by Acme Truck
Over 100 houses, 25 to 40 tons each, were moved 12 miles from Jennings, Mich., to Cadillac, by an Acme Truck and Trailer, Acme-designed and built

Acme Motor Truck Company
530 Mitchell St., Cadillac, Mich.

ACME

On the radiator of every Acme is this seal of dependable performance

ACME
THE TRUCK OF PROVED UNITS

Trade-Mark registered U. S. and other countries

THIS SYMBOL IN ANY ADVERTISEMENT MEANS: SEE "CHILTON AUTOMOBILE DIRECTORY" FOR COMPLETE BUYING INFORMATION

Personal Items

Paul W. Andrus, who for the past 16 years has been identified with the Cleveland Hardware Co., has been made sales manager of the Buckeye Forging Co. The company is now in a plant of doubled capacity and is a recognized source of supply for S. A. E. standard forged parts.

Jule C. Ayers has been announced as vice-president of the Thompson Auto Co., distributor of Federal trucks in Detroit. His experience dates back to the early days of the industry when he was associated with the Rapid Truck Co., Pontiac. He helped organize the Tower-Ayers Co., in 1916, and later saw service with a number of well-known trucks, with notable success.

Burton W. Collins, who has been associated for a number of years with the Lozier Motor Co., and the Springfield Metal Body Co., has become associated with Charles S. Monson, manufacturer's representative, 2102 Dime Bank Bldg., Detroit. He will act as eastern representative and will have headquarters at the Karson Manufacturing Co., 75 10th St., Long Island City.

M. H. Cox, representative of the Fafnir Bearing Co., announces the removal of the Detroit office from 752 David Whitney Bldg., to 511 Capitol Bldg., Detroit.

Lynn B. Dudley, who for the past seven years has been advertising manager of the Federal Motor Truck Co., has joined Campbell, Trump & Co., as secretary. He represented the Federal Company on the advertising committee of the N. A. C. C.

M. M. Gilman has been appointed general manager for the accessories department of the Packard Motor Car Co., of New York City. He succeeds A. C. Acker.

E. D. Gibbs has tendered his resignation as advertising director of the B. F. Goodrich Co. He will open a New York office as a special advertising and sales counsellor.

Harry Griffith, general manager of the Midwest Engine Co., Indianapolis, Ind., is to become assistant to Walter Briggs of the Briggs Mfg. Co. Mr. Griffith is widely known throughout the industry, having been located in Detroit for a number of years as general manager of the Remy Electric Co.

Sydney H. Hale has resigned as sales manager of the Vim Motor Truck Co., of Philadelphia, after a connection with the company extending over eight years. Prior to joining the Vim selling organization Mr. Hale was connected for almost an equal length of time with the H. J. Koehler Co. of Newark, N. J., starting as a city salesman and winding up as sales manager. Mr. Hale is taking a well-earned rest before announcing his future plans.

Kelly R. Jacoby, former sales manager of the Earl Motor Co., will become associated with his former chief, Clarence Earl, in the capacity of assistant sales manager of the National Motors Corp.

R. Ralston Jones, Jr., has been made Indianapolis district representative for the United States Motor Truck Co.

J. A. MacDaniels, formerly manager of the Dallas, Texas, branch of the General Motors Truck Company of Pontiac, Mich., has been appointed district sales manager of that territory, succeeding Pierre Schon, who is taking up new duties in the sales department at the factory.

Lester J. Meyer was recently appointed advertising manager of the Lathrop-McFarland Co., Oldsmobile distributors at Indianapolis. Mr. Meyer will have charge of local advertising in Indianapolis and will devote considerable time to promotional work among the dealers under the Lathrop-McFarland Co. He has had considerable experience in national advertising fields, having been five years with the Florida Citrus Exchange.

Harold O. Smith has been placed in charge of the plant of the Syra-Cord Tire & Rubber Co., Syracuse, N. Y. Mr. Smith was one of the founders of the G. & J. Tire Co., and the Indianapolis Rubber Co.

John Tainsh has been announced as vice-president of sales of the Kissel Motor Car Co., Hartford, Wis. For the past nine years he has been general sales manager of the Mitchell Motors Co., Inc., of Racine, Wis., and has a wide acquaintance among automobile manufacturers, distributors and dealers throughout the country.

Edward C. Waldvogel, general manager of the Yale & Towne Co., has been elected vice-president of that corporation. His title in the future will be vice-president in charge of sales, superseding the former title of general manager. He has been with the organization for 18 years.

F. D. Walters, president of the Jordan Garage & Sales Co., is now handling sales and service for the Atterbury Motor Car Co., in the Oil City (Pa.) territory.

Campbell Wood, for the past few years connected with the Klaxon Company in various capacities, and recently made manager of the Motor Equipment Division, with headquarters in Detroit, has severed his connection. Mr. Wood has not as yet announced his plans for the future.

Factory News

Motor Products Corp. is planning to expend $1,000,000 for additional building construction and equipment for the Detroit plant of the organization. This enlargement is compelled by the increase in business.

The Am-plus Storage Battery Co. reports that in spite of the fire in its plant January 24, at 741 Van Buren St., Chicago, the company is now in full operation in its new factory at 429 W. Superior St., Chicago. The new plant beside having double the floor space of the old, is newly equipped with up-to-date machinery.

The Cleveland Wrought Products Co., of Cleveland, of which Charles L. Wasmer is president, has found it necessary to erect a new building adjacent to the present factory. The new unit is 112 x 60 ft., contains two stories, and will be used for stock, thus enabling the company to make immediate deliveries on its products.

Indiana Truck Corporation, at a meeting of directors, declared their regular quarterly dividend No. 25 of 1¾ per cent on the preferred stock of the corporation, payable April 1, 1923, to stockholders of record March 31, 1923.

The Studebaker-Wulff Rubber Co., Marion, O., recently received additional rubber manufacturing equipment that will make possible the production of 1000 tires a day. The plant has been operating day and night all through the winter.

The Tillotson Manufacturing Co., Toledo, O., manufactured its millionth carburetor on March 24th, a splendid achievement in view of the fact that this production covers only a period of seven years. This year's production schedule calls for a production of 350,000 carburetors.

The Black & Decker Mfg. Co., Towson, Md., manufacturer of portable electric tools, announces that the regular quarterly dividend has been declared on the preferred stock and that the payment of dividends on common stock has ben resumed, same having been discontinued for about a year, following the recent depression.

The Van Wheel Corp., of Oneida, N. Y., recently placed orders for $30,000 worth of machinery for its factory. The business of the company has been growing at a rapid rate, estimated at about 200 per cent increase per month.

The Rubber Insulated Metals Corp., 50 Church St., New York City, has moved its sales and executive office to the factory, 18 Oliver St., Newark, N. J. By having all the departments together greater co-operation is made possible.

Literature

Metals and Their Alloys. One of the most comprehensive books on alloys yet published, dealing with the latest methods of alloy preparation, physical and chemical properties and usage. Written by Charles Vickers, specialist in metaling, alloying and casting metals. Indispensable to the foundryman, metallurgist and engineer. Published by Henry Carey Baird & Co., Inc., 2 West 45th St., New York, N. Y. Price, $7.50.

Oxy-Acetylene Welding and Cutting. Sixth revised and enlarged edition of P. F. Willis' excellent treatise on the theory and practice of welding. Helpful to the repair and garage man. Published by the Norman W. Henley Publishing Co., 2 West 45th St., New York. Price, $1.50.

Electricity and Its Application to Automotive Vehicles. Paul McDowell Stone, of the Michigan State Automobile School, has made the above subject accessible to the layman as well as the technical man, by his clear and concise treatment of one of the most important factors in automobile mechanics. There are a number of particularly noteworthy chapters, among which could be mentioned that on illumination as well as detailed chapters on the various electrical systems now in use. This is a commendable contribution to the automobile industry. D. Van Nostrand Co., 8 Warren St., New York. Price, $4.00 net.

The Chassis. This is Volume II of Ethelbert Favary's "Motor Vehicle Engineering" series. Clear, thorough and complete explanations for designing the various units forming the chassis. Suitable for engineer, designer and draftsman. McGraw-Hill Book Company, Inc., 370 7th Ave., New York City. Price, $5.00.

Automobile Power Plants is a text and reference book on the modern gasoline automobile engine, written by Ben G. Elliot, M. E., University of Wisconsin. The work is particularly adapted for teaching and study. There are a number of excellent illustrations. The McGraw-Hill Book Company, Inc., 370 7th Ave., New York.

The Bosch News published by the American Bosch Magneto Corp., has a number of interesting articles in its March number. There is an advertising talk by A. H. Bartsch, and an article on imitation parts and a description of the new "AT" Type Bosch Magneto, as well as several other instructive items.

Red Devilry, published by Smith & Hemenway Company, Inc., 261 Broadway, New York, has several timely articles on store merchandising which could be read with advantage by accessory retailers. Free on request.

Specialized vs. Under-One-Roof Motor Trucks is an attractive and interesting booklet issued by members of Motor Truck Industries, Inc., Book Bldg., Detroit, which includes manufacturers of "Specialized" motor trucks and parts manufacturers. The booklet can be read with interest by every truck user and dealer.

Manufacturer Versus Assembled. An interesting little pamphlet written by "An Old-Fashioned Salesman," and published by the Reo Motor Car Co., Lansing, Mich.

An Entirely New Truck Selling Plan

10th Year

"ALWAYS ON THE JOB"

Capacity
3800 lbs. to 15,000 lbs.
Including Body

The right kind of business men will find the selling of SIGNALS very profitable

Particularly Interesting to the Dealer With Limited Capital

It has never been extremely difficult to sell Signal Motor Trucks on account of their known high quality and their price. Our new selling plan, which is perfected and proved, for the distribution of our product, makes the Signal selling franchise an opportunity of a lifetime for the dealer with limited capital.

The ambitious merchant who can meet our requirements as to integrity, initiative and activity ***can realize substantial profits from selling Signal Motor Trucks.***

Factory co-operation will be extended in the fullest meaning of the word. It gives reliable business men every advantage and assistance possible consistent with good business principles.

Our selling organization has not been fully completed and your territory may be open. A letter or a wire may give ***you*** the most profitable truck business in your territory.

Signal Truck Corporation

Detroit, Michigan

MOTOR SIGNAL TRUCKS

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How the Sonnenberg Coal Company Regard Warner Semi-Trailers

SONNENBERG COAL COMPANY
2111 OLIVE STREET
ST. LOUIS, MO.

March 20, 1923

Warner Mfg. Co.
Beloit, Wisconsin

Gentlemen:

We have been operating for the past three months one of your ten-ton semi-transmission dump trailers in connection with our short wheelbase truck-tractor and we are pleased to state that we are perfectly satisfied with same.

The way in which the load is distributed enables us to carry a live load of ten tons and at the same time keep within the law.

We are operating this unit, hauling coal alongside of one of our five-ton trucks of the same make and we find that we are able to double the load at an additional expense of about 25% for gasoline.

We have never had this trailer in for repairs, and we feel that owing to the construction of same that it will be some time before it is necessary; we have reduced the upkeep of the tractor at least 50%.

We take pleasure in recommending the Warner Dump Trailer to any one who is interested in hauling big tonnage, for we know it is earning for us big money. We are

Sincerely yours
SONNENBERG COAL CO.

Not only can greater tonnage be hauled per day with the Warner Semi-Trailer, but it can be hauled at considerable less cost per ton—which means just this—you can handle heavier loads because of proper distribution of weight in less time and on less fuel than with any other type of truck built. The result is three savings where trucking economy counts most: Tonnage—Time—Fuel Saving.

Write today for interesting descriptive literature or better yet let our engineering department give you specific data and costs on Warner Semi-Trailers for your particular hauling conditions.

Warner semi-trailer construction permits of hoist operation at any angle and in close quarters.

WARNER
TRUCK CONVERTING
SEMI-TRAILERS

WARNER MANUFACTURING CO.
DEPT. 10
BELOIT WISCONSIN

THIS SYMBOL IN ANY ADVERTISEMENT MEANS: SEE "CHILTON AUTOMOBILE DIRECTORY" FOR COMPLETE BUYING INFORMATION

Service MOTOR TRUCKS
Scientifically Cushioned

If you are to sell trucks to make money, satisfy yourself on the following points concerning any contract you are asked to sign: 1. Age, stability and financial strength of manufacturer. 2. The truck itself. 3. Percentage of repeat orders. 4. Models to meet needs of your territory. 5. Real co-operation. 6. The integrity and absolute fairness of the individuals who direct the policies. The Service contract fully meets these requirements. *Write for details.*

Truck Value—and Profits

To make money selling trucks it's mighty important that you handle a line that offers high inherent value to your customers.

Service Trucks are not "theoretically designed." They are built to work where trucks *must* work; to meet operating conditions trucks *must* meet. And do this for years.

They are built for the road—with all working parts "scientifically cushioned" to accommodate the truck to the winding of uneven roads, to withstand the terrific shocks caused by chuck holes and cobble stones, to cushion the jar occasioned by backing into curbs.

That's one reason why each truck of the full line stands up so well and brings to Service dealers those real profits that come alone from a high percentage of repeat orders.

Trucks and "Tractors" in ¾, 1¼, 1½, 2, 3, 3½, 4 and 6 ton capacities

LOOK FOR THE RED PYRAMID ON THE RADIATOR

SERVICE MOTORS, INC.

Manufacturers of Motor Trucks and Railroad Motor Coaches

Wabash, Indiana

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AJAX
PNEUMATIC TRUCK CORD TIRES

SERVICE and economy in a pneumatic truck tire are dependent upon the enduring qualities built into it. To insure a full measure of endurance, there must be proper balance in materials, construction and design.

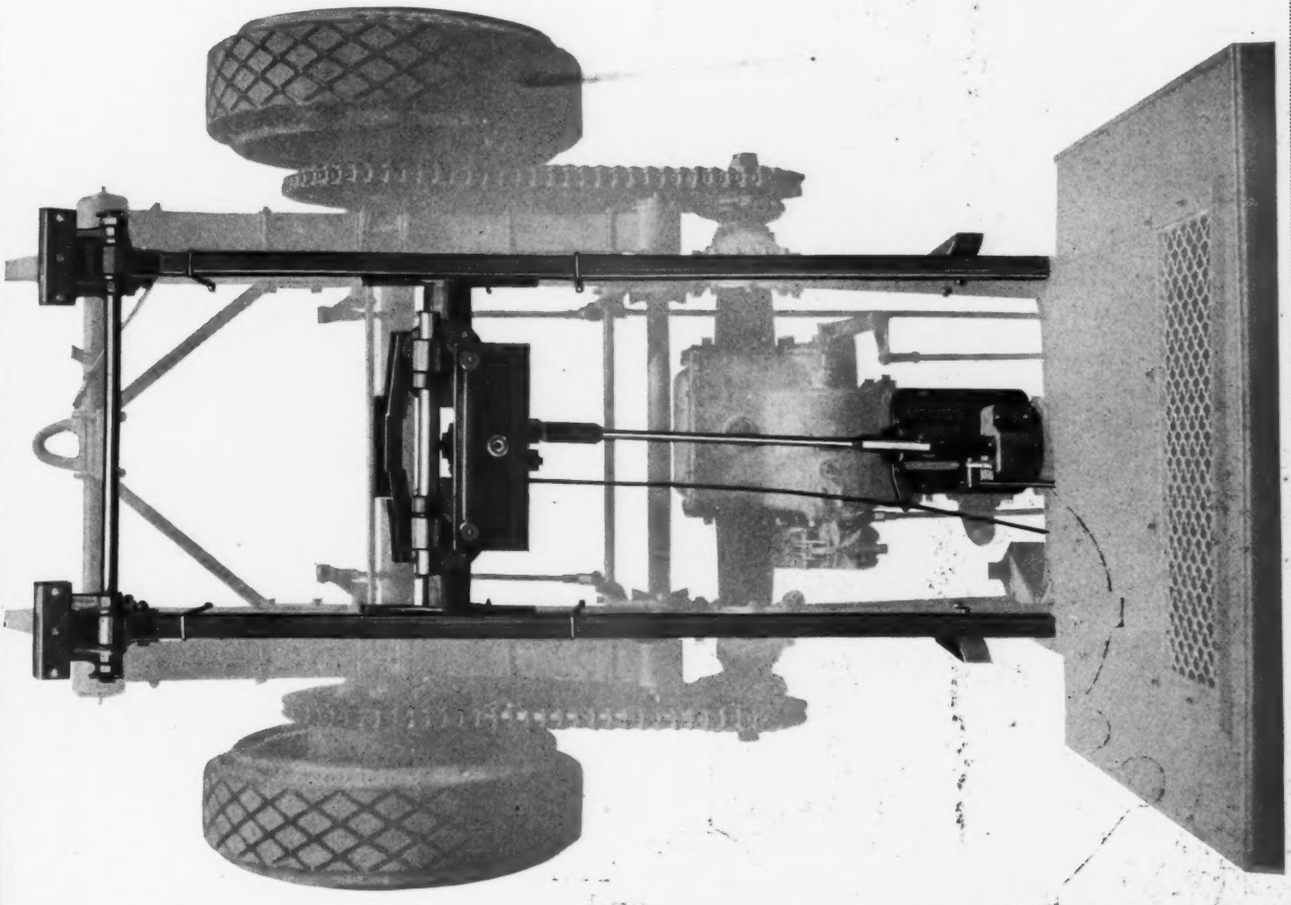
Achievement of proper balance in AJAX Cord Tires for motor bus and truck service has been accomplished through long experience and scientific observation of the severest kind of tests.

Motor bus and truck owners are invited to correspond with us on their problems relating to pneumatic cord tires. Make use of this service, without obligation.

AJAX RUBBER COMPANY, Inc.
220 W. 57th Street New York City

NEW FEATURES IN CONSTRUCTION AND DESIGN

THIS SYMBOL IN ANY ADVERTISEMENT MEANS: SEE "CHILTON AUTOMOBILE DIRECTORY" FOR COMPLETE BUYING INFORMATION



HEIL HYDRO HOIST

DOES NOT COVER UP CHASSIS

You don't have to have universal joints in your body to make repairs on the transmission, rear axle, brake rods, etc., when your truck is equipped with a Hydro Hoist. See for yourself!

Compare the Heil Hoist with all other underbody hoists, either mechanical or hydraulic. You are engineer enough to readily see how much more accessible are transmission, rear axle, brake rods, etc., when the truck is equipped with the Heil Hoist.

No need to remove the hoist to overhaul your truck—save 6 to 10 hours' labor. The hoist being suspended on the frame does not interfere with chassis flexibility. Note that the hoist is located at the strongest part of the frame.

Study this photograph, inspect the next Hydro Hoist job you see and draw your own conclusions—you be the judge!

Three Heil Equipped Diamond T Trucks, part of a fleet of 18, used by the Cushman-Wright Contracting Co. of Chicago, Ill.

If You Want Facts and Prices, Write Today

THE HEIL CO.

1143 Montana Ave. Milwaukee, Wisconsin

St. Paul, Chicago, Pittsburgh, New York, Washington, D. C.; Sioux City, San Francisco, Denver, Seattle

Manufacturers of Steel Dump Bodies, Hydro Hoists, Compartment Truck Tanks, Storage Tanks, and Underground Station Storage Tanks

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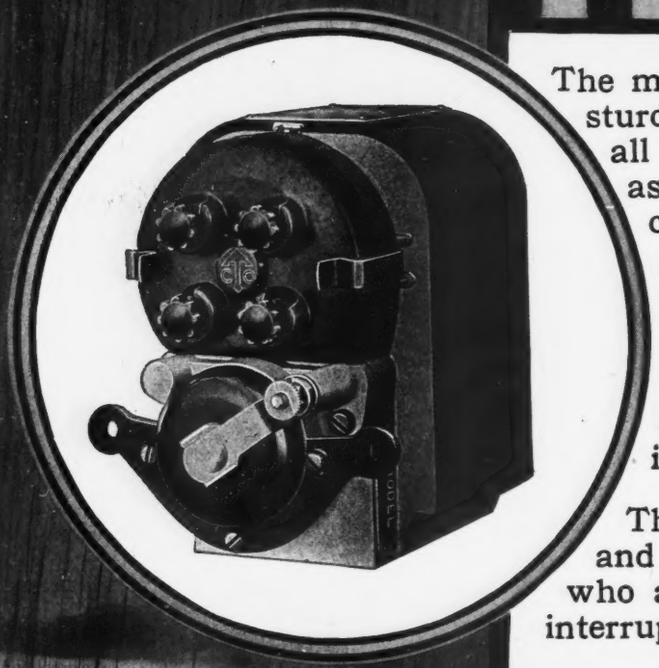
WATERPROOF TEAGLE



The motor truck equipt with the sturdy Teagle will "carry on" in all kinds of weather, insofar as this unfailing magneto is concerned.

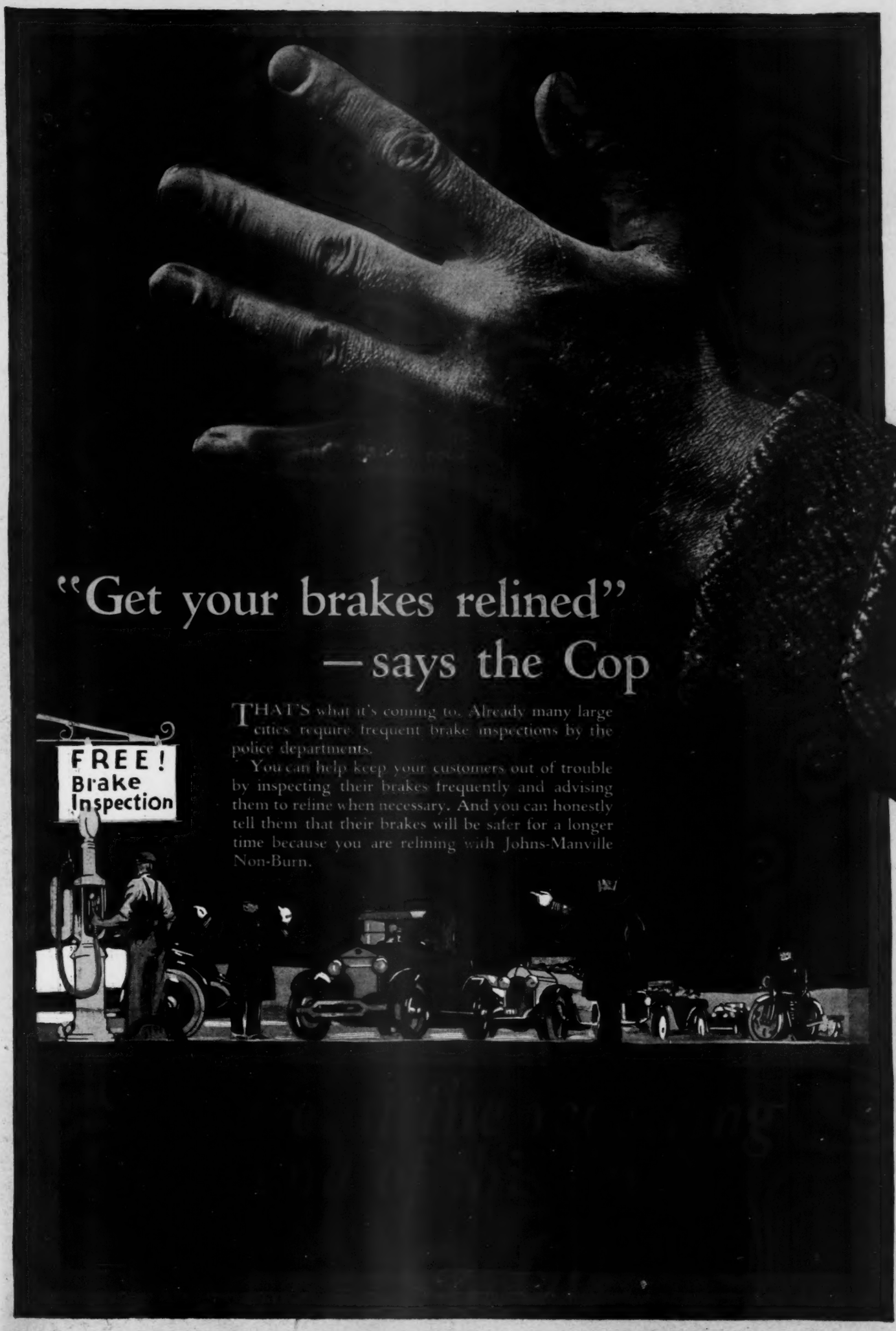
Thru fierce snowstorms, rainstorms, all kinds of inclement weather, the Teagle will never be short circuited because of moisture striking it. ***It's waterproof!***

Think this over you makers and dealers of quality trucks who aim to give customers uninterrupted transportation service.

The TEAGLE COMPANY

Cleveland
Ohio

"The Simplest Magneto of Them All"


"Get your brakes relined"
—says the Cop
THAT'S what it's coming to. Already many large cities require frequent brake inspections by the police departments.
You can help keep your customers out of trouble by inspecting their brakes frequently and advising them to reline when necessary. And you can honestly tell them that their brakes will be safer for a longer time because you are relining with Johns-Manville Non-Burn.
FREE!
Brake
Inspection

ASK 'EM TO RE-LINE

Here's an idea!

Examine the brakes of your storage cars during the night. Advise the owners in the morning if their brakes need re-lining.

. . . here's another!

Watch the cars come to a stop before your curb pump. You'll see that some of the brakes aren't holding as they should. Slip a jack under the rear axle and show the owner. Suggest that he drop in later for a re-lining job.

. . . and another!

See your distributor about getting your name into the big Johns-Manville Newspaper Campaign now running in the big cities all over the country. It brings re-lining jobs to your door.

. . . and four more!

1. Get a Johns-Manville Brake Lining rack (free with initial order) and display it prominently. It's a suggestion to car drivers.

2. Send postcards to your mailing list that suggest brake examination. We have postcards already printed for you. Send for some.

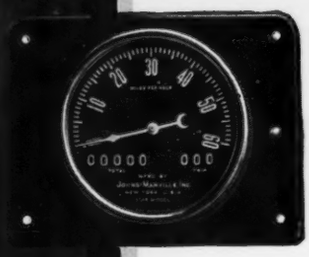
3. Ask 'em to re-line—with the Johns-Manville outdoor flange sign. Send for it.

4. *Always re-line with Johns-Manville Non-Burn.*

JOHNS-MANVILLE
Automotive Equipment

Your best salesman!

—your repairman



Johns-Manville Speedometer for Ford Cars

Ask 'em to buy this sturdy mileage recorder. It enables Ford owners to tell how far—how fast—how many miles per gallon.

Catalog No. 3023

How about a small order of our special speedometer for the new Star car? Get ahead of the rest of the trade.

Johns-Manville Automotive Jewett Ring Packing

For use wherever a ring of small cross section is required—particularly adapted for water pump shafts. Contains no rubber or rubber substitutes. You can make a tight gland packing in quick time.

Johns-Manville Automotive Seigelite Sheet Packing

—of high tensile strength, when immersed in water it becomes extremely tough; for gasketing water manifolds, differential housings, carbureters, etc. Seigelite is especially recommended for use against water or oil.

Johns-Manville Automobile Tape

Tape is a small matter, but whether it is good or bad makes a big difference on the job. This tape is sticky—and more important, it stays sticky! It is strong and it will not fray. We guarantee it.

Johns-Manville Non-Burn Asbestos Brake Lining

The quality of any asbestos brake lining can be no better than the quality of its asbestos fibre. Johns-Manville picks from its large supply of raw asbestos, only the fibre best suited for this important task. That's why brakes are safer and last longer with Johns-Manville Non-Burn.

Johns-Manville Hub Odometer

—an accurate mileage recording device for commercial cars—can be quickly attached. Grease-proof and permanent. Set one up on the counter. Its odd shape attracts attention and when you explain its efficiency on a truck hub—you ring the bell on the cash register.

Johns-Manville Automotive Service Sheet Packing

Dependable wherever high temperatures are encountered especially recommended for use on intake and exhaust manifolds, cylinder heads, etc. Service Sheet is thin because thin packing makes a tighter joint.

Johns-Manville Asbestos Clutch Facings

Gripping, wear-resisting facings, either compressed or woven. For your convenience we have placed a stock of Johns-Manville Clutch Facings, for all standard cars requiring disc facings, at a Distributor's near you. (See list on next page.)

Your best counter!

—your curb pump

CHOOSE YOUR DISTRIBUTOR

Alabama
Moore-Handley Hardware Co., Birmingham
Johnson Tire & Auto Co., Montgomery

Arkansas
Crow-Burlingame Co., Little Rock

California
Chansior & Lyon Co., Fresno
Chansior & Lyon Co., Los Angeles
Featherstone, E. A., Los Angeles
McCoy Motor Supply Co., Los Angeles
Weinstock-Nichols Co., Los Angeles
Chansior & Lyon Co., Oakland
Weinstock-Nichols Co., Oakland
Kimball-Upson Co., Sacramento
P. W. Gavin Company, San Diego
Chansior & Lyon Co., San Francisco
McCoy Motor Supply Co., San Francisco
Weinstock-Nichols Co., San Francisco
California Auto Supply Co., Stockton

Colorado
Auto Equipment Co., Denver
Foster Auto Supply Co., Denver
Motor Accessories & Tire Co., Pueblo

Connecticut
Hessel & Hoppen Co., New Haven
Motor Tire Service Co., Putnam

District of Columbia
National Electrical Supply Co.
Rubel, Chas., & Co.

Florida
Baughman Company, G. Norman, Jacksonville
Baughman Company, G. Norman, Miami
Baughman Company, G. Norman, Tampa

Georgia
Alexander-Seewald Co., Atlanta
Osburn-Abston & Co., Atlanta
Cody Co., W. E., Columbus

Illinois
Automobile Supply Co., Chicago
Chicago Automobile Supply House, Chicago
Motor Car Supply Co., Chicago
Sheridan Auto Supply Co., Chicago
Tenk Hardware Co., Quincy
Washington Auto Supply Co., Washington

Indiana
Orr Iron Co., Evansville
Lomont & Co., Ft. Wayne
The I. J. Cooper Rubber Co., Indianapolis
Goodlin Auto Equip. Co., South Bend

Iowa
Cedar Rapids Auto Supply Co., Cedar Rapids
Sieg Co., Davenport
Herring Motor Co., Des Moines
Repass Auto Co., Waterloo

Kansas
The Frank Colladay Hardware Co., Hutchinson
Watson-Weldon Co., Salina
Southwick Auto Supply Co., Topeka
The Massey Hardware Company, Wichita

Kentucky
Peaslee-Gaulbert Co., Louisville

Louisiana
Shuler Auto Supply Co., New Orleans
Interstate Electric Co., Shreveport

Maine
The Farrar-Brown Company, Inc., Portland

Maryland
Auto Supply Co., Baltimore
Coggins & Owens, Baltimore

Massachusetts
Linscott Supply Co., Boston
Motor Tire Service Co., Fitchburg
Duncan & Goodell Co., Worcester
Motor Tire Service Co., Worcester

Michigan
E. A. Bowman, Inc., Detroit
Tisch Auto Supply Co., Grand Rapids

Minnesota
Kelley-Duluth Co., Duluth
Minneapolis Iron Store Co., Minneapolis
Reinhard Bros. Co., Minneapolis
Williams Hardware Co., Minneapolis
Nicols, Dean & Gregg, St. Paul

Missouri
Joplin Supply Co., Joplin
The Faeth Company, Kansas City
Ayers Farmer Auto Supply Co., St. Joseph
Beck & Corbitt Iron Co., St. Louis
Fred Campbell Auto Supply Co., St. Louis
Geller, Ward & Hasner, St. Louis
Hermann-Sanford Company, Springfield

Montana
Northwestern Auto Supply Co., Billings

Nebraska
Nebraska Buick Auto Co., Lincoln
Stors-Western Auto Supply Co., Omaha

Nevada
Nevada Auto Supply Co., Reno

New Hampshire
Thompson & Hoague Company, Concord

New Jersey
Economy Auto Supply Co., Newark
Pruden Hardware Co., Newark

New York
Albany Hardware & Iron Co., Albany
Martin-Evans Co., Brooklyn
H. D. Taylor Co., Buffalo
Barker, Rose & Clinton Co., Elmira
Weaver-Ebling Co., New York City
Pruden Hardware Co., W. E., New York City
Whittemore-Sim Co., Inc., New York City
The Olmstead Co., Inc., Syracuse

North Carolina
Carolinas Auto Supply House, Charlotte
Ko-Mo Supply Co., Charlotte
Automobile Supply Co., Wilmington

North Dakota
Grant-Dadey Company, Fargo

Ohio
The Penn. Rubber & Supply Co., Akron
C. & D. Auto Supply Co., Cincinnati
The I. J. Cooper Rubber Co., Cincinnati
The Penn. Rubber & Supply Co., Cincinnati
The Penn. Rubber & Supply Co., Cleveland
The I. J. Cooper Rubber Co., Columbus
The Penn. Rubber & Supply Co., Columbus
The I. J. Cooper Rubber Co., Dayton
The Penn. Rubber & Supply Co., Toledo
The Penn. Rubber & Supply Co., Youngstown

Oklahoma
Severin Tire & Supply Co., Oklahoma City
Severin and Company Tulsa
Machinery & Supply Co., Tulsa

Oregon
Wiggins Company, Inc., Portland
Chansior & Lyon Co., Portland

Pennsylvania
Motor Accessories Co., Allentown
Central Supply Co., Altoona
The Penn. Rubber & Supply Co., Erie
Front Market Motor Supply Co., Harrisburg
General Auto Supply Co., Harrisburg
Johnstown Auto Co., Johnstown
General Auto Supply Co., Lancaster
The Penn. Rubber & Supply Co., Oil City
Berrodin Rubber Co., Philadelphia
Gaul, Derr & Shearer Co., Philadelphia
Roberts Electric Supply Co., H. C., Philadelphia
Dyke Motor Supply Co., Pittsburgh
Jackson Motor Supply Co., Pittsburgh
General Auto Supply Co., York

Rhode Island
Belcher & Loomis Hardware Co., Providence

South Carolina
Franke Co., Inc., C. D., Charleston
D. W. Alderman, Jr., Inc., Florence
D. W. Alderman, Jr., Inc., Greenville

South Dakota
L. & L. Motor Supply Co., Sioux Falls

Tennessee
Southern Auto Supply Co., Chattanooga
The I. J. Cooper Rubber Co., Knoxville
Osburn-Abston & Co., Memphis
Auto Supply Co., Nashville
The I. J. Cooper Rubber Co., Nashville

Texas
Ferris-Dunlap Co., Dallas
Tri-State Accessories Corp., El Paso
The Equipment Co. of Texas, Fort Worth
Meyer Co., Jos. F., Houston
The Southern Equipment Co., San Antonio
McCauley-Ward Motor Supply Co., Waco

Utah
Inter-Mountain Electric Co., Salt Lake City
Motor Mercantile Co., Salt Lake City

Vermont
Vermont Hardware Co., Burlington

Virginia
The Owens-Merritt Co., Danville
Piedmont Hardware Co., Danville
Crump Co., Benj. T., Richmond
Talman Auto Supply Co., Richmond
Meadows-Price Co., Roanoke

Washington
Chansior & Lyon Co., Seattle
Reynolds & Reynolds Seattle
Chansior & Lyon Co. Spokane
Holley-Mason Hardware Co., Spokane
Chansior & Lyon Co., Tacoma
Reynolds & Reynolds, Tacoma

West Virginia
Williams Hardware Co., Clarkesburg

Wisconsin
Clemons Auto Supply Co., Eau Claire
Andrae & Sons Co., Julius, Milwaukee
Shadbolt & Boyd Iron Co., Milwaukee
Tisch Auto Supply Co., Milwaukee
Western Motor Supply Co., Milwaukee

Wyoming
Auto Equipment Co., Casper

CANADA

Alberta
The Motor Car Supply Co., of Canada, Ltd., Calgary
The Motor Car Supply Co., of Canada, Ltd., Edmonton

British Columbia
Marshall-Wells, B. C., Ltd., Vancouver

Manitoba
Wood, Vallance, Ltd., Winnipeg

New Brunswick
The Lounsbury & Company, Ltd., Newcastle

Nova Scotia
J. J. Snook Ltd., Truro

Ontario
A. Chown & Co., Ltd., Kingston
Just Motors Limited, Ottawa
Samuel Trees & Co., Ltd., Toronto
Bowman-Anthony Co., Windsor

Saskatchewan
Wood, Vallance, Limited, Regina

FOREIGN

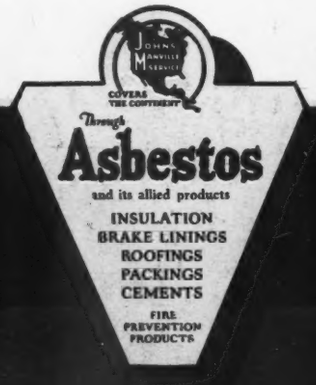
England
A. C. R. Greene & Co., Ltd., London

New Zealand
Jas. J. Niven & Co., Ltd., Wellington

New South Wales
Hislop, Lloyd & Co., Sydney

South Australia
Cornell, Ltd., Adelaide

Queensland
Canada Cycle & Motor Agency, Brisbane



JOHNS-MANVILLE Inc.
Madison Avenue at 41st Street, New York City
Branches in 56 Large Cities
For Canada:
Canadian Johns-Manville Co., Ltd., Toronto

See the Truck Tire Man Who Has No "Ax to Grind"

THE United States Truck Tire Service Dealer has at his disposal a *complete* line of Truck Tires.

A tire for *every* class of service.

His interest is in helping you to get the right tire for your use—whether it's pneumatic, cushion or solid.

In making his recommendation to you he not only has the benefit of his experience and knowledge of local conditions, but a wealth of information compiled by the Technical Service Department of the United States Tire Company.

If the problem is a particularly "knotty" one—the personal counsel and advice of this department are at his command.

The United States Truck Tire Service Dealer is playing a substantial part in putting motor transportation on a more efficient basis. Consult *him*.

United States Truck Tires are Good Tires

United States Tire Co., New York City

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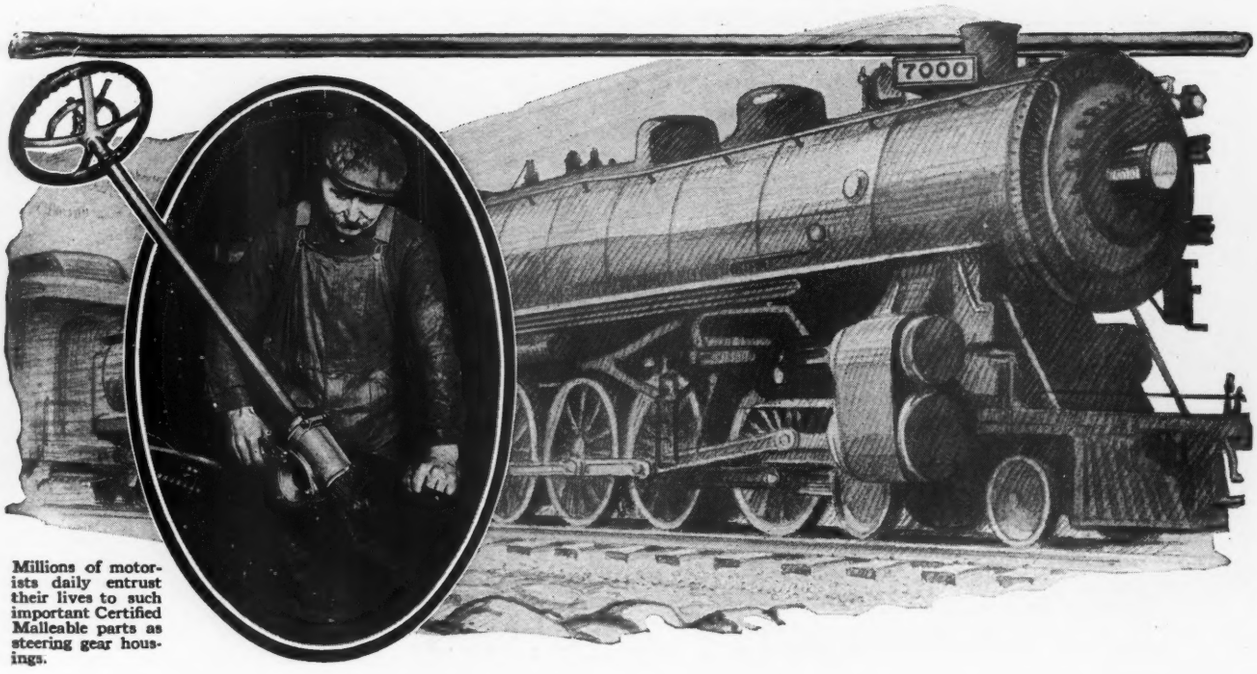


Millions of motorists daily entrust their lives to such important Certified Malleable parts as steering gear housings.

The World's Largest Locomotives and the Best Motor Cars Use Certified Malleables

This is Locomotive No. 7000, the first of the iron monsters purchased by the Union Pacific System to haul the famous Los Angeles Limited from Cheyenne, Wyoming, over the mountains to Ogden.

This huge locomotive and fifty-four others just like it, each have thirty-five vital parts made of Certified Malleable Castings;—just about the same number that go into each one of the country's best makes of trucks and motor cars.

Whether railway or automotive construction be involved, officials and engineers responsible for design and continuous operation do not court breakdown and disaster by using inferior materials, but they specify "Certified Malleables" that are strong enough, tough enough and durable enough to insure absolute safety.

Steering gear cases, wheel hubs, differential housings, brake supports, spring hangers, and many other vital automotive parts of Certified Malleable are a guarantee of definite physical properties to the manufacturer, the dealer and the user.

THE AMERICAN MALLEABLE CASTINGS ASSOCIATION
THE 1900 EUCLID BUILDING CLEVELAND, OHIO

Makers of Certified Malleable Castings

Certificate Holders for the Quarter Ending December 31st 1922

Albany Malleable Iron Co.....Voorheesville, N. Y.
Albion Malleable Iron Co.....Albion, Mich.
American Malleable Castings Co.....Marion, O.
American Malleable Co.
Lancaster, N. Y., and Owosso, Mich.
Badger Malleable & Mfg. Co...S. Milwaukee, Wis.
Baltimore Malleable Iron & Steel Casting Co.
Baltimore, Md.
Belle City Malleable Iron Co.....Racine, Wis.
Chain Belt Co. .....Milwaukee, Wis.
Chicago Malleable Castings Co.
West Pullman, Chicago, Ill.
Columbus Malleable Iron Co., The...Columbus, O.
Danville Malleable Iron Co.....Danville, Ill.
Dayton Malleable Iron Co.
Dayton, O., Ironton, O., and Canton, O.
Decatur Malleable Iron Co.....Decatur, Ill.
Devlin Mfg. Co., Thomas.....Philadelphia, Pa.
Eastern Malleable Iron Co., The
Naugatuck Malleable Iron Works, Naugatuck Conn.; Bridgeport Malleable Iron Works, Bridgeport, Conn.; Troy Malleable Iron Works, Troy, N. Y.; Wilmington Malleable Iron Works, Wilmington, Del.; Vulcan Iron Works, New Britain, Conn.
Erie Malleable Iron Co.....Erie, Pa.
Federal Malleable Co.....West Allis, Wis.
Flagg & Co., Stanley, G.....Philadelphia, Pa.
Fort Pitt Malleable Iron Co.....Pittsburgh, Pa.
Frazer & Jones Co.....Syracuse, N. Y.
General Electric Co.....Erie, Pa.
Illinois Malleable Iron Co.....Chicago, Ill.
Iowa Malleable Iron Co. .....Fairfield, Iowa
Kalamazoo Malleable Iron Co...Kalamazoo, Mich.
Laconia Car Co.....Laconia, N. H.
Lakeside Malleable Castings Co.....Racine, Wis.
Link-Belt Co.....Indianapolis, Ind.
Marion Malleable Iron Works.....Marion, Ind.
Moline Malleable Iron Co.....St. Charles, Ill.
National Malleable Castings Co., The
Cleveland, O., Chicago, Ill., Indianapolis, Ind., Toledo, O., E. St. Louis, Ill.
Northern Malleable Iron Co.....St. Paul, Minn.
Northwestern Malleable Iron Co...Milwaukee, Wis.
Peoria Malleable Castings Co.....Peoria, Ill.
Pittsburgh Malleable Iron Co.....Pittsburgh, Pa.
Rhode Island Malleable Iron Wks..Hillsgrove, R.I.
Rockford Malleable Iron Works.....Rockford, Ill.
Ross-Meehan Foundries, The...Chattanooga, Tenn.
St. Louis Malleable Casting Co.....St. Louis, Mo.
Saginaw Malleable Iron Co.....Saginaw, Mich.
Standard Malleable Castings Co..Terre Haute, Ind.
Stowell Co., The.....South Milwaukee, Wis.
Symington Co., T. H., The.....Rochester, N. Y.
Temple Malleable Iron & Steel Co.....Temple, Pa.
Terre Haute Malleable & Mfg. Co.
Terre Haute, Ind.
Trenton Malleable Iron Co., The....Trenton, N. J.
Union Malleable Iron Co., The.....E. Moline, Ill.
Vermilion Malleable Iron Co.....Hoopeston, Ill.
Wanner Malleable Iron Co.....Hammond, Ind.
Warren Tool & Forge Co.....Warren, Ohio
Webster Mfg. Co., The.....Chicago, Ill.
Wisconsin Malleable Iron Co.....Milwaukee, Wis.
York Mfg. Co.....York, Pa.
Zanesville Malleable Co.....Zanesville, O.

POSITIVE PHYSICAL PROPERTIES — ACA CERTIFIED TRADE MARK

CERTIFIED-MALLEABLE CASTINGS

THIS SYMBOL IN ANY ADVERTISEMENT MEANS: SEE "CHILTON AUTOMOBILE DIRECTORY" FOR COMPLETE BUYING INFORMATION

Mountain Road Breaking Proves Out a Differential

EVERY Differential may present a special problem, but back of every new Brown-Lipe-Chapin design is the experience of building many others that have made records in hundreds of thousands of miles of service.

The ability to design Differentials to successfully meet these widely varying factors requires a judgment based on vast experience. To manufacture such a product in quantities, holding to the high standard set by the designer, requires an organization and a plant such as is possessed by few manufacturers.

Brown-Lipe-Chapin Co.
SYRACUSE, N. Y.

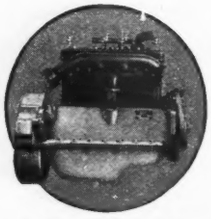
BROWN-LIPE-CHAPIN DIFFERENTIALS

THIS SYMBOL IN ANY ADVERTISEMENT MEANS: SEE "CHILTON AUTOMOBILE DIRECTORY" FOR COMPLETE BUYING INFORMATION

This fleet of Buda-powered Service trucks hauling crushed stone has averaged as high as 106 miles a day over a two weeks' period. Built by Service Motor Truck Company, Wabash, Ind.

Are You profiting by Buda's never-quit pulling power?

From the beginning the Buda has been built for those truck makers who believe long and reliable engine service is more important than engine price. All Buda working parts, for example, are made extremely rugged to withstand hard, continuous wear. Each shaping operation is held to the most exacting limits. And two stringent test block trials doubly prove the Buda's smooth, powerful running before it leaves the shops. Prospective buyers throughout the land recognize the superior value of a truck powered with the Buda engine. Cash in on this sales-clinching point. See that the line of trucks you sell is Buda-equipped.



BUILT FOR A PURPOSE

THE BUDA COMPANY, HARVEY CHICAGO SUBURB ILL.
ESTABLISHED 1881

Buy only genuine Buda Parts for the Buda engine. New Parts Catalog No. 402 is now ready.

BUDA
The
ENGINE

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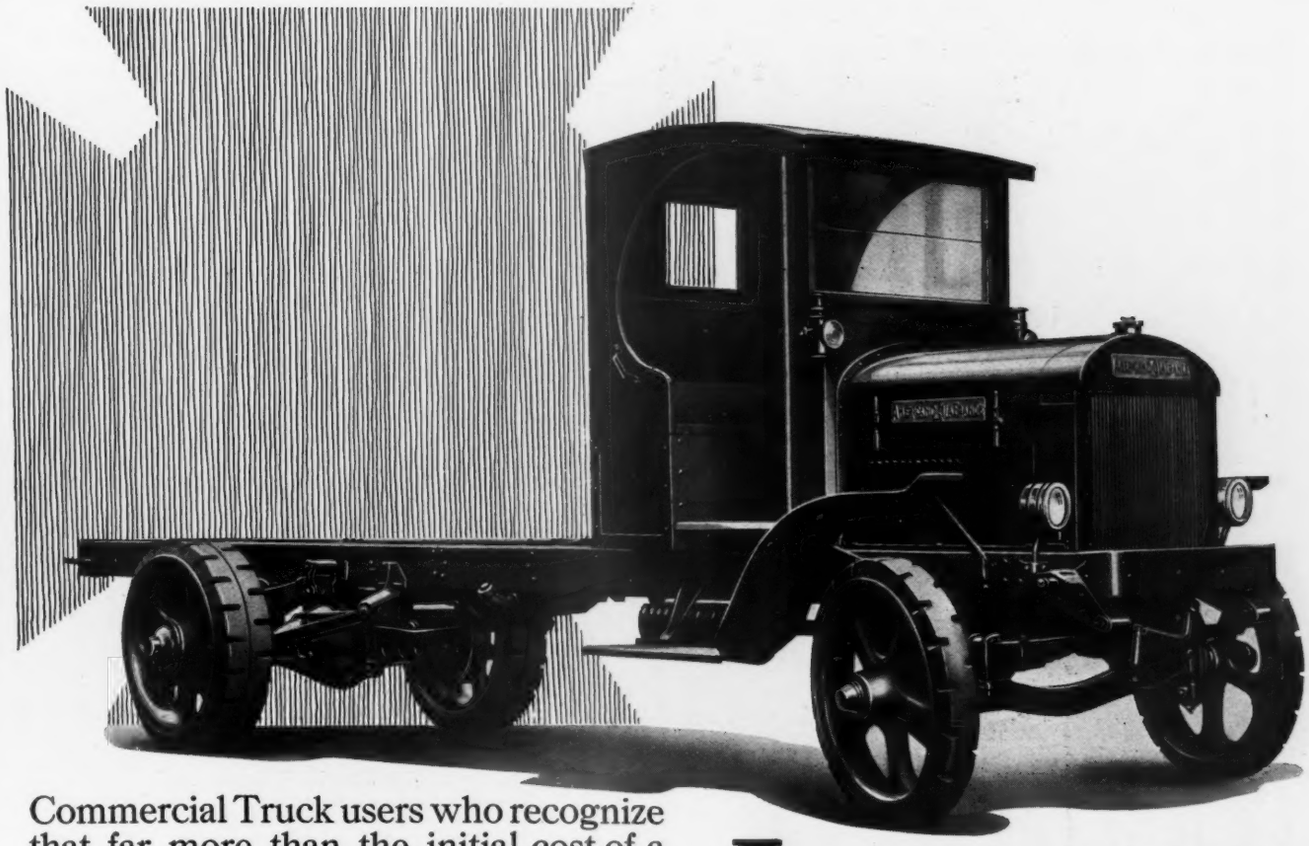

Commercial Truck users who recognize that far more than the initial cost of a motor truck is spent for operation and maintenance during its normal life will appreciate American-LaFrance Commercial Trucks.

The accessible design, quality materials and workmanship embodied in American-LaFrance Commercial Trucks are evidences that the thought of their economical operation is ever in mind.

When you buy American-LaFrance Equipment you purchase more than just a truck.

American-LaFrance stands for a quality truck plus maintenance service plus transportation engineering experience and assistance.

Built by America's largest fire apparatus makers.

AMERICAN LAFRANCE

the Truck that Stays Sold

FOUNDED 1845 — AMERICAN-LAFRANCE — COMMERCIAL TRUCKS

AMERICAN-LAFRANCE FIRE ENGINE COMPANY, INC.

COMMERCIAL TRUCK FACTORY
BLOOMFIELD, N. J.

NEW YORK OFFICE
FISK BLDG., BROADWAY AT 57TH ST.

FIRE APPARATUS FACTORY, ELMIRA, N. Y.

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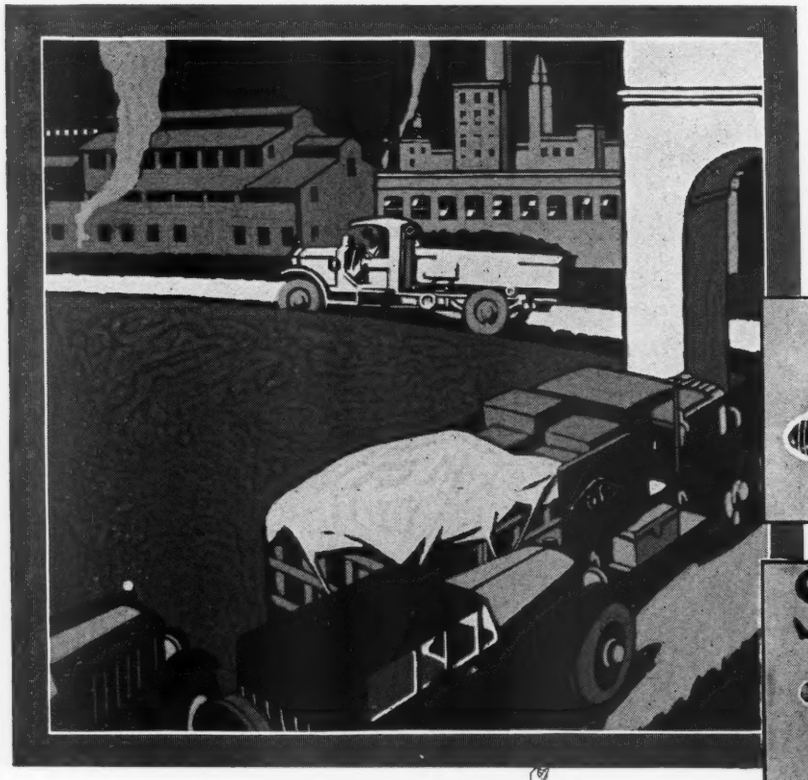
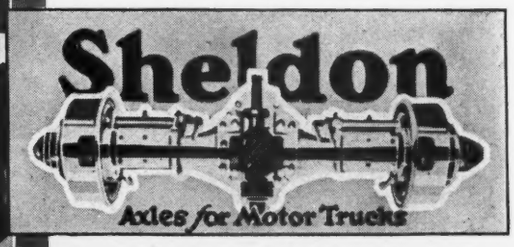
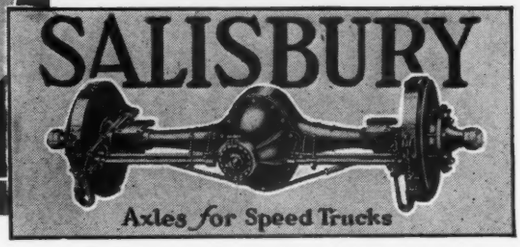
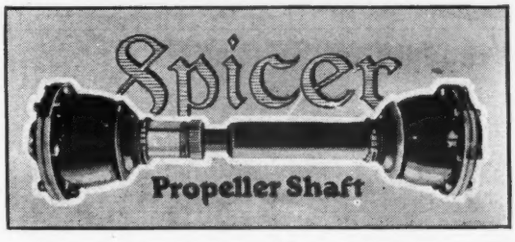


A vast volume of the products of American industry and countless thousands of passengers are being carried on trucks and cars equipped with one or more of the load-bearing and power-transmitting units you see pictured here.

Their names and prestige have had no small share in putting these cars and trucks from the manufacturers' into the consumers' hands.







Parish Mfg. Corp. .....Reading, Pa., and Detroit, Mich.
Sheldon Axle and Spring Co.....Wilkes-Barre, Pa.
Salisbury Axle Company.....Jamestown, N. Y.
Spicer Mfg. Corporation.....South Plainfield, N. J.

C. A. DANA, *President*

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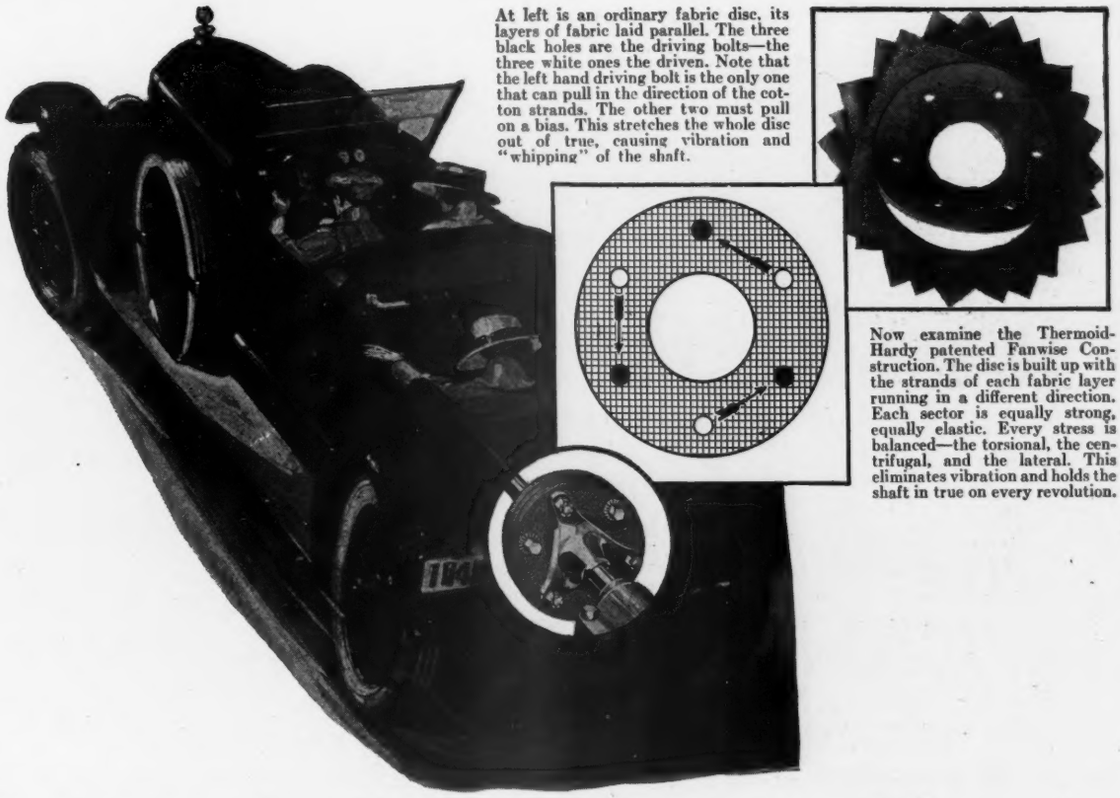

At left is an ordinary fabric disc, its layers of fabric laid parallel. The three black holes are the driving bolts—the three white ones the driven. Note that the left hand driving bolt is the only one that can pull in the direction of the cotton strands. The other two must pull on a bias. This stretches the whole disc out of true, causing vibration and "whipping" of the shaft.

Now examine the Thermoid-Hardy patented Fanwise Construction. The disc is built up with the strands of each fabric layer running in a different direction. Each sector is equally strong, equally elastic. Every stress is balanced—the torsional, the centrifugal, and the lateral. This eliminates vibration and holds the shaft in true on every revolution.

Protects the delicate gears and bearings

One reason why Thermoid-Hardy is replacing metal universals

WHEN the shaft is out of true two or three times per revolution—as frequently happens—it means between 3,000 and 4,500 vibrations. This results in serious damage to delicate gears and bearings in the transmission and rear axle assembly.

The Fanwise Construction of the Thermoid-Hardy Universal absolutely eliminates sudden jolts and "whipping"—it holds the shaft in true on every revolution.

Balances every stress

The diagram above shows how the famous Fanwise Disc is built up, layer on layer, the strands of each layer of fabric running *in a different direction.* Each sector is of uniform strength and flexibility. Every stress is perfectly balanced—

—the torsional, between the bolt holes

—the centrifugal, from the center outward

—the lateral, from the forward and back tugs of the shaft.

Your ordinary fabric disc cannot equalize these stresses. With two of the three driving bolts pulling *across* the strands of cotton the whole disc naturally stretches out of true. Vibration of the shaft follows.

The Thermoid-Hardy fabric disc is flexible, but added to this is a rugged strength.

Strength that withstands a torsional strain which twists a two-inch steel shaft. Strength good for 60,000 miles on the heaviest trucks, over the roughest roads —without lubrication or adjustment. Strength which absorbs the five-ton blow of starting a loaded truck.

Thermoid-Hardy discs are now packaged for distribution through jobbers and dealers for replacement sales. Full information, prices and discounts sent on request.

A book you should have

We have prepared a book, "Universal Joints—Their Use and Misuse," that treats the subject from every angle—the mechanical principles, construction, lubrication, process of manufacture, strength, tests, and records of performance. Send for your copy today.

THERMOID RUBBER COMPANY
Sole American Manufacturers

Factory and Main Offices: Trenton, N. J.

New York Chicago Los Angeles Detroit
Atlanta Seattle Kansas City Boston
Cleveland San Francisco London Paris
Turin

LIST OF USERS

American British Mfg. Co.
Allis Chalmers Mfg. Co.
Anderson Motor Co.
The Autocar Co.
Available Truck Co.
Barley Motor Car Co. (Roamer)
Crow-Elkhart Motor Corp.
Jas. Cunningham Son & Co.
Dart Truck & Tractor Corp.
The Dauch Mfg. Co.
Diamond T Motor Car Co.
Doane Motor Truck Co.
Elgin Motor Car Corp.
Elgin Street Sweeper Co.
Fageol Motors Co.
Fifth Ave. Coach Co.
H. H. Franklin Mfg. Co.
Garford Motor Truck Co.
Gramm-Bernstein Motor Truck Co.
Handley Knight
Hawkeye Truck Co.
Hendrickson Motor Truck Co.
Highway Motors Co.
Holt Mfg. Co.
Indiana Truck Co.
International Harvester Co. of A., Inc.
International Motor Co.
Jackson Motors Corp.
Kelsey Motor Co.
Kentucky Wagon Mfg. Co., Inc.
Kenworthy Motors Corp.
King Motor Car Co.
King Zeitler Co.
Lakewood Eng. Co.
Larrabee-Deyo Motor Truck Co.
Lexington Motor Co.
Locomobile Co.
Menominee Motor Truck Co.

LIST OF USERS

Mercer Motors Co.
Moreland Motor Truck Co.
McFarlan Motor Co.
Nelson & LeMoon
E. A. Nelson Automobile Co.
Nelson Motor Truck Co.
D. A. Newcomer Co.
O'Connell Motor Truck Co.
Oliver Tractor Co.
Oneida Motor Truck Co.
Packard Motor Car Co.
Parker Motor Truck Co.
Patriot Motors Co.
Reliance Motor Truck Co.
Reo Motor Car Co.
Reynolds Motor Truck Co.
Root & Van Dervoort Eng. Co.
Sanford Motor Truck Co.
Southwark Fdy. & Mach. Co.
Sprague Electric Co.
Stoughton Wagon Co.
Studebaker Corp.
Stutes Mar Tractor Co.
Templar Motors Co.
Tioga Steel & Iron Co.
Towmotor Co.
Traffic Motor Truck Corp.
Transport Truck Co.
Twin City Four Wheel Drive Co., Inc.
United Motors Co.
Walter Motor Truck Co.
Ward La France Truck Corp. Inc.
Watson Products Corp.
Geo. D. Whitcomb Co.
Wichita Motors Co.
H. E. Wilcox Motor Co.
J. C. Wilson Co.
Willys-Overland, Inc.
Zeitler & Lamson Truck & Tractor Co.

THERMOID-HARDY
UNIVERSAL JOINT

Makers of "Thermoid Hydraulic Compressed Brake Lining" and "Thermoid Crolide Compound Tires"

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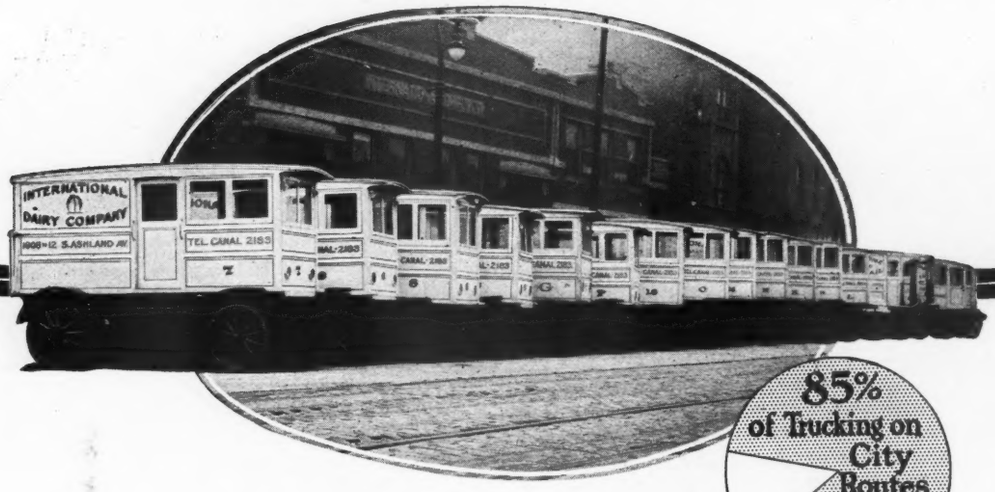

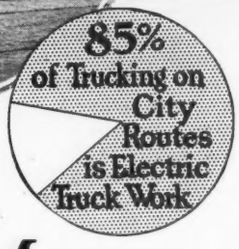

Yes—Truck Dealers CAN Make Real Money

PLENTY of truck dealers have been losing money — because of service grief on gas trucks, dissatisfaction of old customers and the cost of continually digging up new customers, together with the awakening of business everywhere to the startling economy of Walker Electrics on city routes.

Hundreds of the best known fleet users in America have proved to their own satisfaction that other trucking equipment has been costing them 50 to 100% more for trucking on city routes than Walker Electrics. Truck owners generally are investigating these findings—Walker Electric dealers are reaping the profit.

There are attractive Walker territories open. Secure one of them and find out the satisfaction of handling a truck that involves practically no service grief; that has repeated until we have over 70 re-orders from a single user, and that sells new prospects every time one of them refers to a Walker owner.

Thoroughly qualified truck dealers
are invited to write for territory.

Before you buy more trucks—investigate the Walker Electric. Ask any user

WALKER VEHICLE COMPANY : Chicago
AMERICA'S LEADING MANUFACTURER OF ELECTRIC ROAD TRUCKS
New York Boston Philadelphia Buffalo

Load Capacities: 1/2—1—2—3 1/2—5 tons

WALKER ELECTRIC TRUCKS
LOWEST TRUCKING COST

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The little parts that help keep big trucks moving

SOME truck owners feel that by testing regularly the air pressures in their tires they have *taken* the necessary steps to prevent trouble. But just as tires depend on proper inflation, so retaining that inflation and keeping trucks moving without delays depend on the protection given to tire valves.

Rim nuts hold the tire valve in place

Rim nuts keep the valve stems from wearing away against the sides of the valve hole. They also prevent dirt from entering the hole of the wheel felloe and getting between the tire and the tube. Make sure at every inspection that Schrader Rim Nuts are screwed tightly on every tire.

Valve caps keep the valves clean

It is just as important to protect the inside of your truck tire valves as the *outside*. Without valve caps covering the valve, dirt and mud from the road enter the mouth of the valve. The next inflation will force the dirt into the valve and lodge it on the red rubber seat washer of the valve inside.

Schrader Valve Caps will keep your tire valve insides clean. Screwed on tightly by hand, they also seal in the air if the valve inside happens to be injured by dirt and oil from the air line.

Have your inspectors watch for missing valve caps and loose rim nuts. See that extras are in the tool kit of every truck.

Get these rim nuts and valve caps from your supply house.

***DEALERS:** There is a demand for all Schrader truck accessories, such as High Pressure Insides, Angle-foot Gauges, Valve Caps, Dust Caps and Rim Nuts. Watch your stocks.*

A. SCHRADER'S SON, Inc., Brooklyn, New York

Chicago Toronto London

Manufacturers of Schrader Tire Valves—Standard Equipment on All Tires

SCHRADER

RIM NUTS AND VALVE CAPS

THIS SYMBOL IN ANY ADVERTISEMENT MEANS: SEE "CHILTON AUTOMOBILE DIRECTORY" FOR COMPLETE BUYING INFORMATION

Among the Leaders

There are fully 150 truck manufacturers in America, but 85 per cent of the total production comes from ten factories.

Among these first ten are Graham Brothers, whose rapid advance in the 1 ton and 1½ ton truck field is due, in no small measure, to the good will of large fleet owners, who are showing a constantly increasing preference for Graham Brothers Trucks.

1 Ton Chassis, $1265; 1½ Ton, $1325;
f. o. b. Detroit or Evansville, Ind.

GRAHAM *Detroit* BROTHERS *Evansville*

GRAHAM BROTHERS TRUCKS

SOLD BY DODGE BROTHERS DEALERS EVERYWHERE

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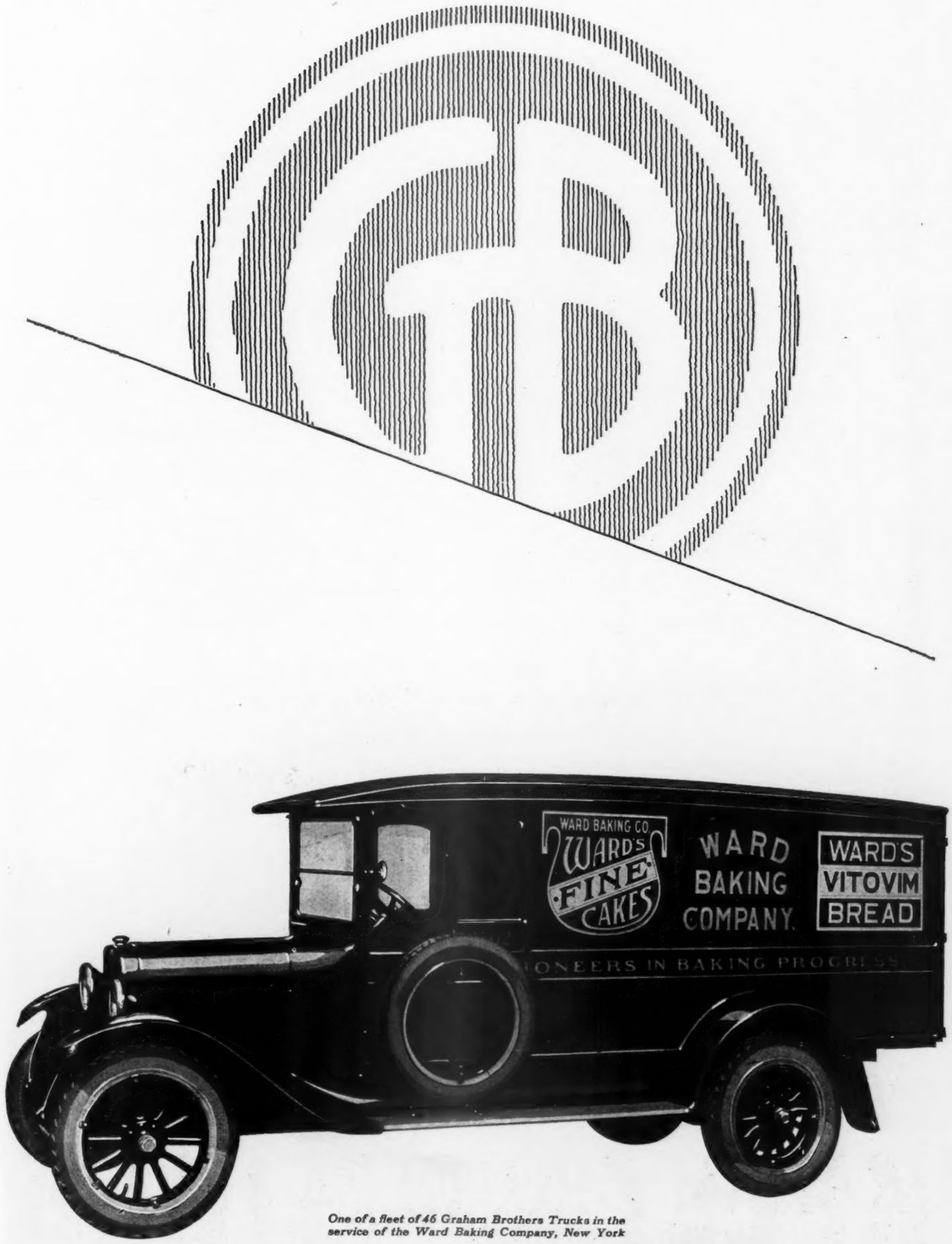

One of a fleet of 46 Graham Brothers Trucks in the service of the Ward Baking Company, New York

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What one satisfied user says about Caterpillar tires

In a recent letter, Mr. E. C. Foss, superintendent of the Grays Harbor County Garage at Montesano, Washington, says:

"We have used Caterpillar tires on our trucks for the past three years and have nothing but complete satisfaction with them.

"They give the trucks ability to use their full power by holding to the road and furnishing traction on particularly soft footing by virtue of their tread construction.

"The cushioning effect is also very noticeable especially on our heavy equipment.

"We have been able to obtain around 18,000 miles from the giant Caterpillars on the rear wheels of our heavy trucks and this is considered exceptional mileage under our working conditions, which are very severe and tire destroying.

"The two tires on the rear of our 1½ ton truck are the first Kelly Kats used in this county. They were installed something over three years ago and have traveled approximately 30,000 miles and are still going."

This letter is not at all unusual. Indeed, it is typical of the letters we are receiving every day from Caterpillar users everywhere. The combination of traction, resiliency and mileage offered by Caterpillars seldom fails to win the unqualified endorsement of the truck operator who gives them a trial.

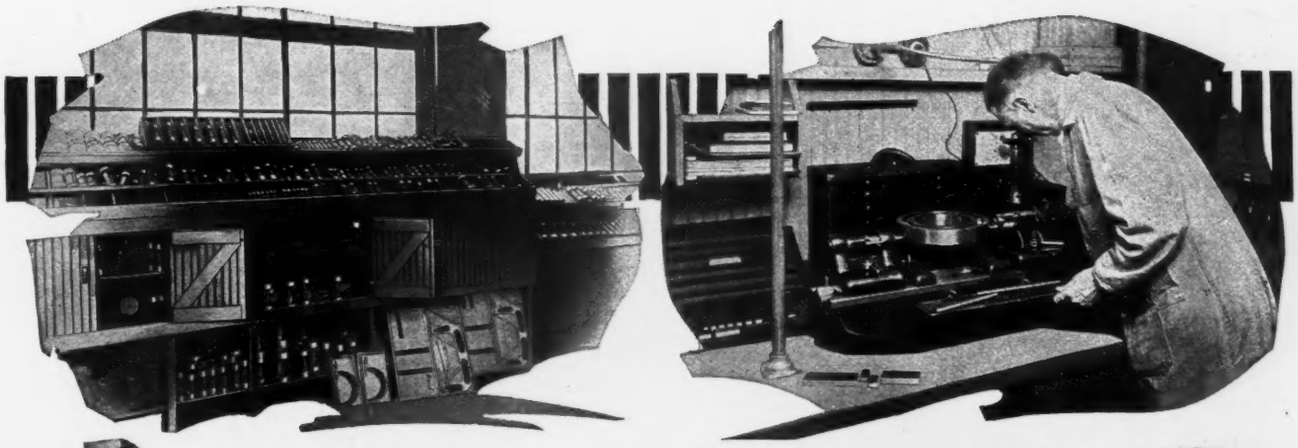
There is no Caterpillar Tire but the one that Kelly makes

KELLY-SPRINGFIELD TIRE COMPANY

KELLY KATS
TRADE MARK REG.
THE TIRES WITH NINE LIVES

250 West 57th STREET NEW YORK, N. Y.

KELLY SPRINGFIELD CATERPILLAR TIRES



Temperature & Master Gages

That there may be no variation in measurement due to expansion and contraction, the temperature of the glass-enclosed and dust-proof room in which STROM Master Gages are kept is most carefully regulated.

At regular, frequent intervals the shop gages are brought to this test room and compared with the Master Gages and with a standard *comparator* checked to .00001 of an inch. *No variation from laboratory standards is permitted in the STROM output.*

Maintaining accuracy of measurement means maintaining minimum of friction. STROM Ball Bearings as nearly approach perfection in measurement as untiring human watchfulness and constant machine precision can make them. Power flows through them with almost no resistance.

STROM guaranteed ball bearings deliver the maximum of power from motor to wheels

"Wherever a Shaft Turns"

(1975A)

Strom BALL BEARINGS

U. S. Ball Bearing Mfg. Co.
(Conrad Patent Licensee)
4542 Palmer St., Chicago, Ill.

An Organization Built for Precision

Scientific in Principle and Practice

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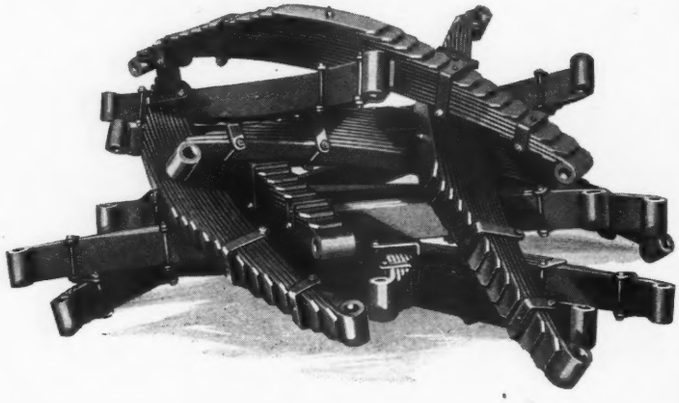

THE SPRING IS THE THING

Mather Springs
Scientifically
Heat Treated

The
Mather Spring Co.
Toledo~Ohio.

MATHER SPRINGS

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WHY

PIERCE-ARROW *SALES* have increased 228 per cent

The 1901 Pierce-Motorette as it looked on its 22nd birthday, which it celebrated by running from Buffalo to New York City. This vehicle was the forerunner of the models which won the Glidden tours in successive years.

OVER a span of years that measures nearly the life time of the automobile industry, there has developed a deep-rooted respect for the name, Pierce-Arrow.

From the beginning, the makers of Pierce-Arrow definitely have sought this respect. They believed then, as now, that a product of uncommon quality—designed and built to excel—is bound to win preference. And they knew then, as now, that the price of this inevitable leadership would be ceaseless vigilance and a constant striving toward still higher attainment.

And so, in America, the name Pierce-Arrow has come to have an almost generic meaning. Unconsciously it springs to the lips of the man on the street as the descriptive term for the capsheaf of quality.

This widespread and acknowledged respect is now more pronounced than ever. It is reflected directly in the increasing public demand for the products which bear the Pierce-Arrow nameplate.

Specifically, this year's sales at this writing show an increase of 228% over those of the corresponding period of 1922.

An unmistakable expression of public confidence and preference —a confidence founded on the stability and integrity of the makers, and a preference based on the sheer merit of the product itself.

The Pierce-Arrow franchise, where available, is more valuable than ever. We invite correspondence from dealers who desire to engage in a permanent, profitable business.

THE PIERCE-ARROW MOTOR CAR COMPANY

Buffalo, New York

Makers of PIERCE-ARROW PASSENGER CARS *and* PIERCE-ARROW MOTOR TRUCKS

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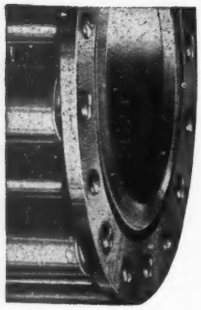
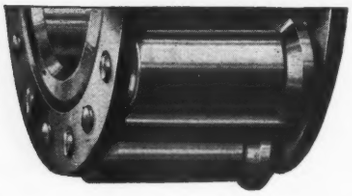
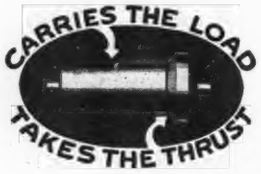




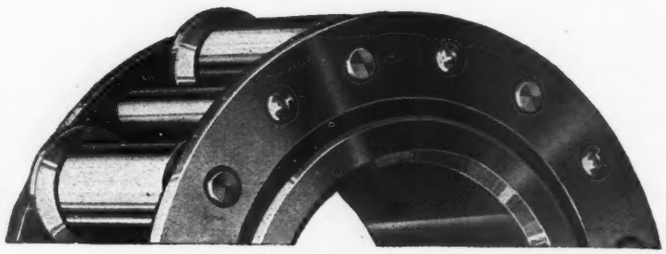


If Bower roller bearings are found in a car it is a pretty good indication that everything about that car is first class in every respect.

Exclusive Bower Features

Separate bearing surfaces for load and thrust. Parallel raceways. Self-aligning. Never need adjusting. Does not develop end thrust under loads. Will not bind or end-slip.

BOWER
ROLLER BEARING CO.
Detroit Michigan



Important Patent Notice

The Bower bearing is patented in the United States and several foreign countries and any infringement of the exclusive right to make, sell, use and vend same will be duly prosecuted.

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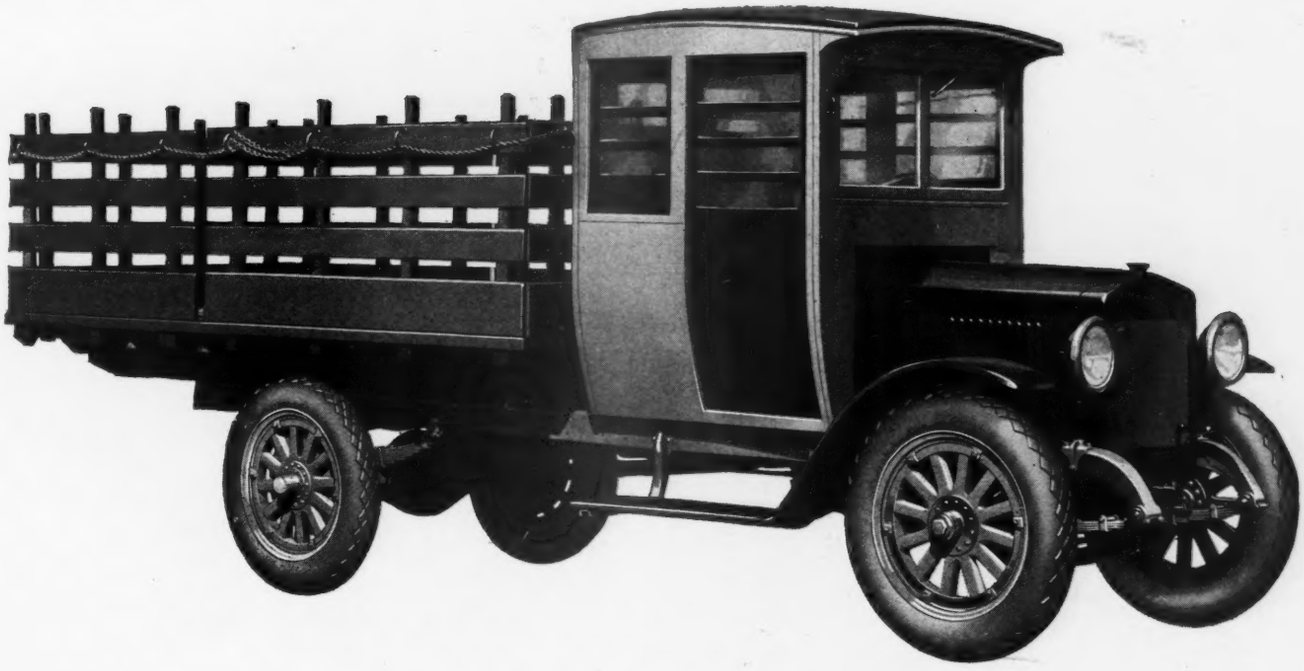

A New One-Ton Model

Here is a brand-new, husky one-ton job of the speed type, that is destined to be one of the outstanding truck values for years to come.

This One-Tonner is of the latest design—ruggedly built—great reserve power—ample capacity—a regular bear for work and dependable under all conditions.

Buda Motor
Brown-Lipe Clutch and Transmission
Timken Axles
Modine-Spirex Radiator
132-inch Wheelbase
33 x 5 Pneumatic Cord Truck Tires

There's a big market for this in your territory. An excellent proposition for dealers. Write at once for details.

Duplex Truck Company
Lansing Michigan

DUPLEX BUILT FOR BUSINESS

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Truck Tire Performance That Holds the Buyer's Good Will

Progressive service dealers throughout the country report that they know of no greater builder of good will than the performance of Firestone Heavy Duty Cushions.

Each successive month increases the satisfaction of the operator in the cushion and long mileage which he gets. Changing seasons only emphasize the adaptability of this massive tire to all conditions.

Firestone chemists have achieved another triumph in the remarkable rubber compound of the Heavy Duty Cushion. The hardest wear makes little impression on it. It is conspicuously free from chipping or wiping; its resilience is extraordinary.

The Mark of Quality

It is one of the big factors in the profitable business that over 800 Service Dealers handling the complete Firestone line of Truck Tires are enjoying.

The Firestone contract offers you the opportunity to become the truck tire headquarters in your locality and to increase sales for 1923. Write the home office or any branch.

Most Miles per Dollar

Firestone

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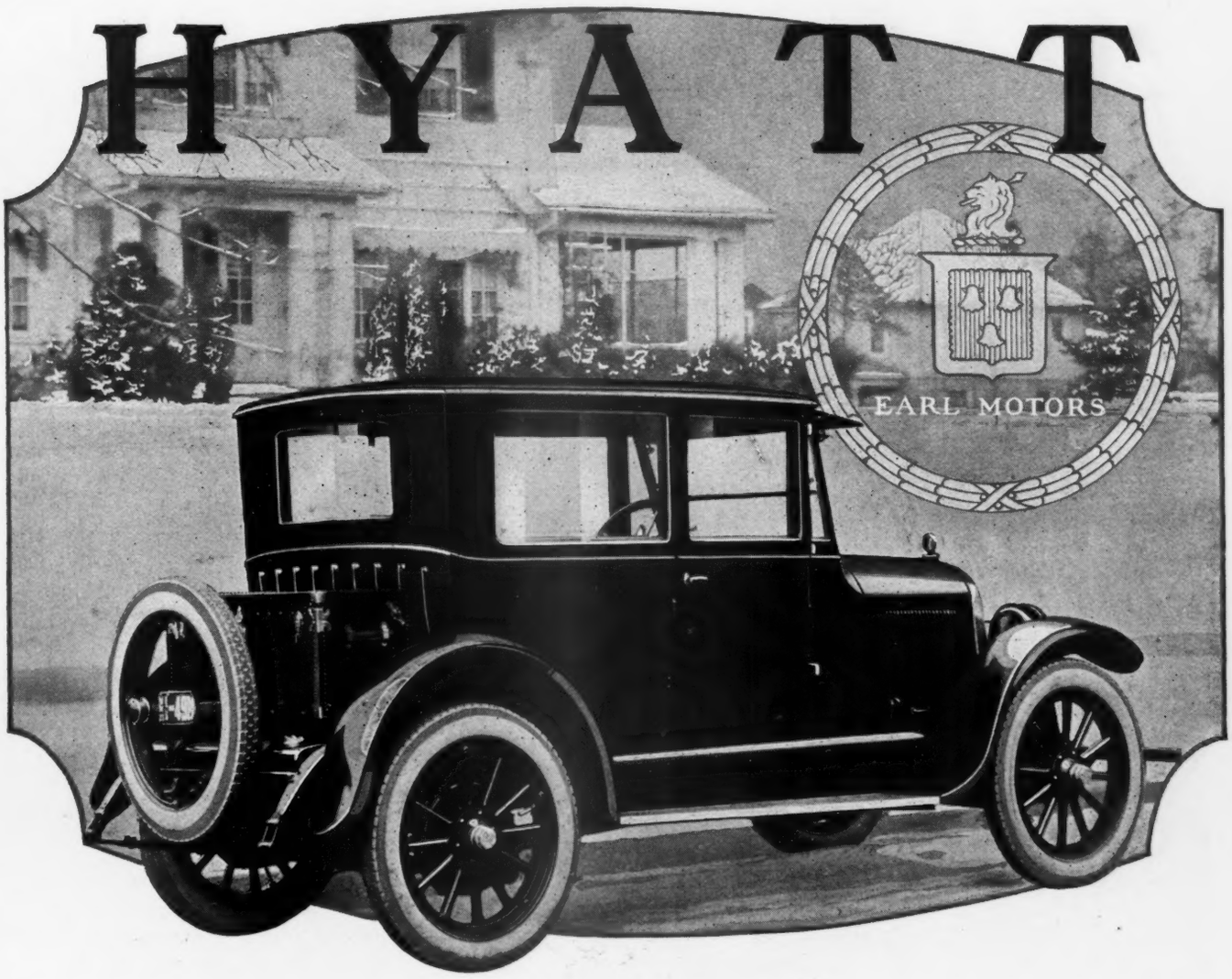
HYATT

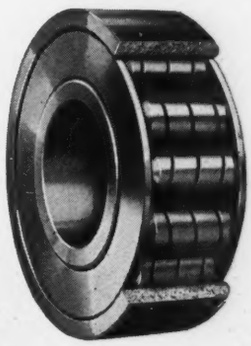


THREE elements have been largely responsible for the unusual success which the Earl motor car has achieved in the comparatively few years of its existence. These are car beauty—mechanical excellence—operating and maintenance economy.

It is logical that Earl engineers should have called upon Hyatt Roller Bearings to aid in procuring the two latter elements. Such has been the history of the motor car industry.

Hyatt Roller Bearings used in the Earl rear axle on the differential and at the hubs insure a strong, smooth-running and quiet unit—one that will give trouble-free satisfaction for as many years as the car remains in service.

A Hyatt bearing with part of outer race removed to show the spiral rollers.



Hyatt Roller Bearing Company

Newark Detroit Chicago San Francisco

Worcester Milwaukee Huntington, (W. Va.) Minneapolis
Philadelphia Cleveland Pittsburgh Buffalo Indianapolis

HYATT QUIET BEARINGS

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MEAD-MORRISON
MOTOR TRUCK WINCHES

TO be a real money-maker today a motor truck must be able to handle the heaviest loads, including the loading and unloading as well as the hauling, with a minimum of men. A heavy office safe aloft, two men and a Mead-Morrison truck winch below, as shown, is typical of the time and money saving possible with Mead-Morrison winches and cranes. Progressive owners regard their trucks as just so much invested capital which must be kept working, whether standing or moving. Mead-Morrison distributors throughout the country are prepared to give you full information and every needed service.

MEAD-MORRISON
MANUFACTURING COMPANY
422 Prescott Street East Boston, Mass.

It Hauls Them All

Mead-Morrison machinery, backed by a designing and manufacturing experience of twenty-five years, is famous among engineers for its ruggedness and dependability

THIS SYMBOL IN ANY ADVERTISEMENT MEANS: SEE "CHILTON AUTOMOBILE DIRECTORY" FOR COMPLETE BUYING INFORMATION

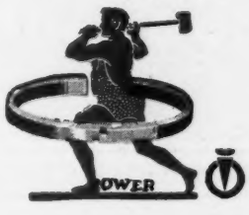
Gill Special Servus

MILLIONS of Gill *Interlocking-Joint* piston rings in use, affirm Gill reputation. For permanent tension and high wear resistance Gill rings have remained unduplicated.

The same special grey iron of which Gill rings are made; the same individual casting process; the same lathe-turned, quick-seating face, all are obtainable now in the Special *Oil-Wiper* and Servus *Step-Cut* rings.

This means piston rings of every type, in every price range, obtainable from one famous line, of *certified* quality.

Gill, 75c—Special, 50c—Servus, 30c—swiftest service always through large jobbers' assortments, supported by 36 factory branches, strategically located.



GILL MANUFACTURING COMPANY
8300 South Chicago Avenue, Chicago

Canadian Factory—415 King St. W. (Brown Engineering Co.), Toronto
Sole Canadian Distributor—Canadian General Electric Company, Limited
Export—American Steel Export Co., Woolworth Building, New York City

THIS SYMBOL IN ANY ADVERTISEMENT MEANS: SEE "CHILTON AUTOMOBILE DIRECTORY" FOR COMPLETE BUYING INFORMATION

EQUIP any truck with a new Stromberg Carburetor—and here's what you get whenever or wherever that truck goes into action—

MORE MILEAGE MORE POWER EFFICIENCY

Which means just this—you can handle heavier loads, thereby reducing the cost per ton of haulage. And you can do it in less time on less fuel. The result is three savings right where economy counts most: Time—Tonnage—Mileage.

Definite proof of that has put the new Stromberg Carburetor on 55% of all listed truck models, while day after day duplication of perfect performance *keeps* it there.

Write today for descriptive matter and be sure to give name, year and model of your truck.

Stromberg Motor Devices Co.
64 E. 25th Street
Dept. 436 **Chicago**

New STROMBERG Does it!
CARBURETOR

TRANSPORT SALES SMASHING RECORDS!

Not since the height of post-war activity has there been a demand for Transport Trucks comparable to that of this spring! This selling season now bids fair to surpass all former records. 36 orders in one day for capacities from 2,000 to 10,000 pounds is an indication. The demand comes from all parts of the country.

Transport Dealers are Busy

The reasons for the astounding success of Transport dealers are clearly in evidence. Transport's complete line for 1923 embodies *everything* that truck science has done to make motor transportation Economical, Dependable, Speedy and Profitable. A money saver and a money earner for your customers.

Engines of the most advanced construction—with removable cylinder heads—force feed lubrication—dry-gas manifold—unusual cooling facilities—valve tappets with hardened tool inserts—*AIR CLEANING EQUIPMENT EXCLUDING ALL DIRT*—gear-cut flywheels—standard SAE mounting for starter.

Oil-type Joints perfectly lubricated—preventing waste, greatly reducing time and work of filling.

Silico Manganese Springs drive shaft brake—radius rods—automatic chassis lubrication—front motor support—a score of outstanding features—and over all and through all Transport Quality materials and workmanship.

The reason so many of the larger truck distributors are joining Transport is because of the tremendous possibilities which Transport 1923 values present. Ask about our finance plan.

Models and Capacities
Including Electrical Equipment

Model 15, 2000 lbs. maximum
Model 26, 3000 lbs. maximum
Model 36, 4000 lbs. maximum
Model 55, 6000 lbs. maximum
Model 61, 7000 lbs. maximum
Model 75, 10,000 lbs. maximum

Back of the Mounting Demand for Transport

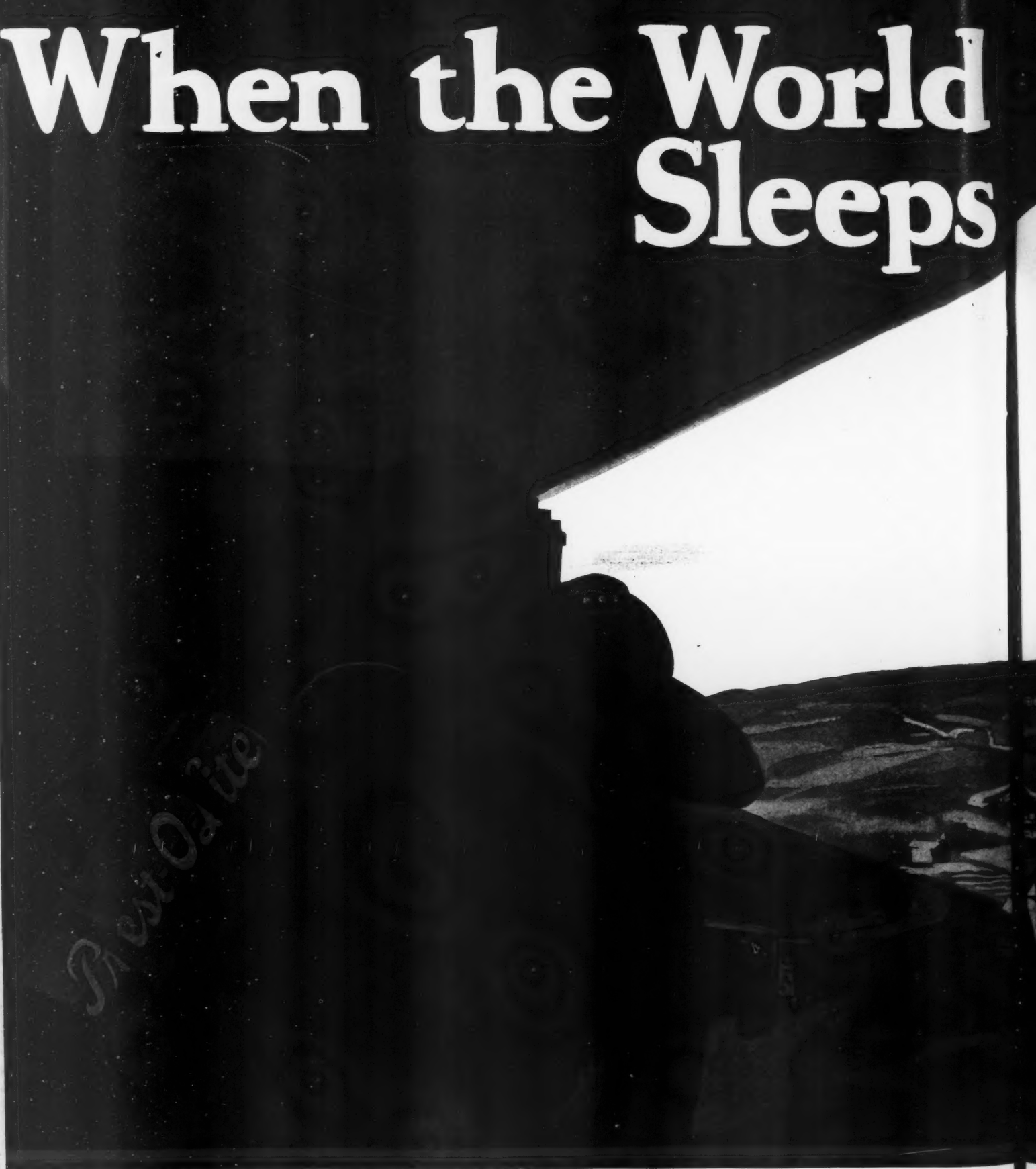
Transport Service Records
Transport's Complete Line
Every Unit Nationally Serviced
Specialized Trucks
Honest Rating
The Organization Behind Transport
Success of Transport Dealers
Sales Co-operation

TRANSPORT TRUCK COMPANY, *Mt. Pleasant, Mich.*

TRANSPORT QUALITY

Transport Is a Specialized Truck—Every Unit Nationally Serviced

When the World Sleeps



Prest-O-

Many thousands of truck drivers are more than depending upon Prest-O-Lite Gas every night. They give this perfect truck lighting system their confident reliance, because they know it will stick to its job in all kinds of weather and over all kinds of roads. Because it cannot be bumped, jolted, jarred or banged out of commission, and because it gives a constant, steady, clear-cut light, it is approved by public authorities everywhere and is the favorite of truck users.

22,000 Prest-O-Lite service stations exchange charged tanks for used ones. You pay only for the gas.

If your truck is not equipped for Prest-O-Lite let your nearest Prest-O-Lite Service station tell you all about it today.

THE PREST-O-LITE COMPANY, Inc., *Indianapolis, Indiana*
Small Tank Sales Department
New York Office: 30 East 42nd Street Pacific Coast Office: 599 Eighth Street, San Francisco
In Canada: Prest-O-Lite Company of Canada, Ltd., Toronto

Lite Gas

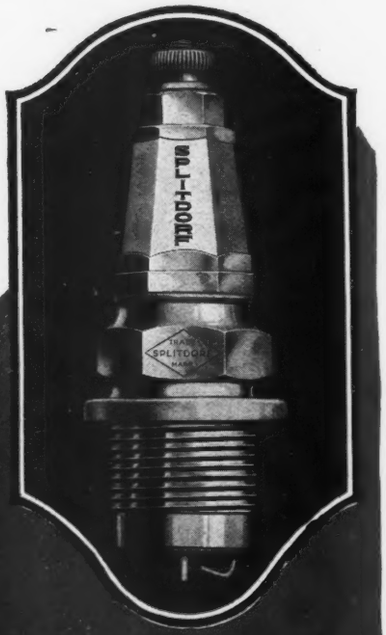
Pep up your Power with SPLITDORF Ignition

THE new Model SS Splitdorf Magneto has proved itself the wonder of the ignition world —a wonder for producing big, fat, sizzling sparks, the kind that puts new life in an engine—a wonder for making an engine more powerful, for making it save gas, and for making it more dependable in daily service.

That is why there is such a great demand for Splitdorf Ignition Specialties for replacements on buses, trucks and tractors where the service demands the utmost in ignition dependability.

SPLITDORF ELECTRICAL COMPANY
98 Warren Street, Newark, N. J.

TRADE SPLITDORF MARK



Thirty minutes after installation, Splitdorf Peened Piston Rings are guaranteed to give more power, save oil, save gas, stop fouling of spark plugs and smoking of engine.

THIS SYMBOL IN ANY ADVERTISEMENT MEANS: SEE "CHILTON AUTOMOBILE DIRECTORY" FOR COMPLETE BUYING INFORMATION

Brunswick Tires for Heavy Service

Business firms and fleet owners who watch costs have learned that *Brunswick Super Pneumatics* pay in service — pay in mileage.

Here is a better tire — a money saver in fuel, in oil, in replacement. Brunswick's big, broad, flat tread delivers all the power of your engine—delivers maximum traction. As a fleet owner buying many tires do not fail to investigate Brunswicks for both light and heavy truck equipment.

Friction-Proofed
BRUNSWICK
TIRES

The Brunswick-Balke-Collender Co.

General Offices: 623-633 So. Wabash Avenue, Chicago, Illinois Branches in All Principal Cities

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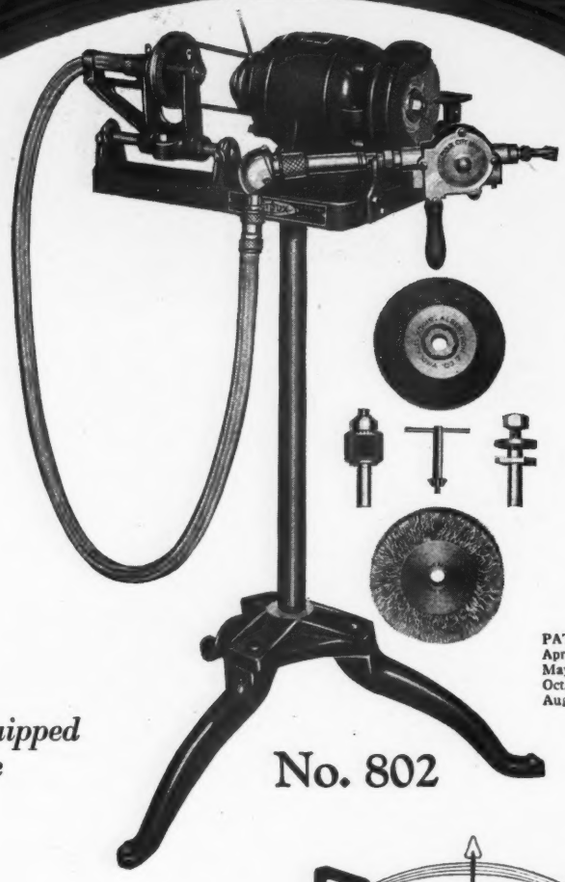

PATENTED
April 12, 1909
May 21, 1912
Oct. 22, 1918
Aug. 2, 1921

"The Well-Equipped Shop Gets the Business"

No. 802

SIOUX
Trade Mark Reg U.S. Patent Office

Transmits Power Exactly Where You Want It

Has unlimited uses in every shop. Especially adapted for Valve Grinding, Emery wheel grinding, Drilling, Reaming, Polishing and Cleaning Carbon.

For Valve Grinding, the 3-speed pulley provides the correct speed, low for large valves, higher for smaller valves. A control enables you to stop and start at will the tool being used.

For Emery Wheel Grinding, you can get into inaccessible places. Especially handy in welding work for smoothing out the weld.

A special feature of the Sioux Flexible shaft is the Emery wheel,—6-in. x ½-in—equipped with guard and tool rest—permanently attached to the motor for use in grinding tools and other small parts.

Full Information Sent on Request

Ask Your Jobber About It

Write for Catalogue of Sioux Tools and Valve Seat Reamer Specifications

ALBERTSON & CO. SIOUX CITY, IOWA

SIOUX FLEXIBLE SHAFT AND ATTACHMENTS

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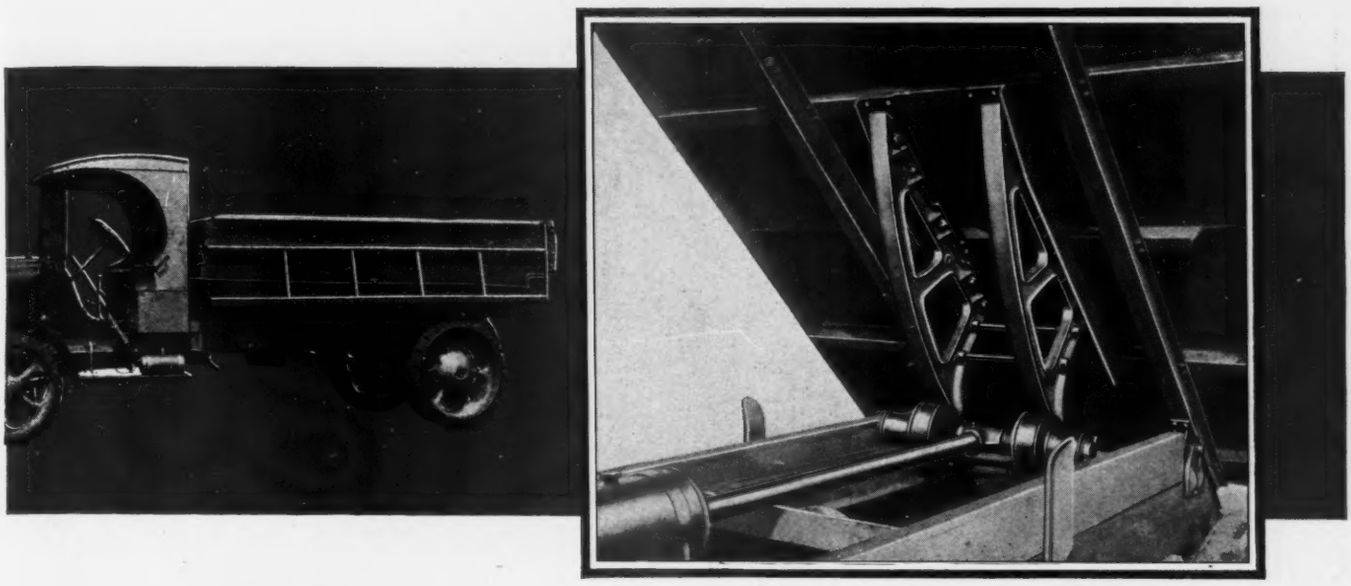

Built by "Gar" Wood

Since the birth of the industry, Wood-Detroit Hydraulic Hoists have been helping trucks to cut costs in bulk hauling. Time has proved their dependability; use in every climate and all seasons, has demonstrated their independence from outside conditions; and their simplicity—with no moving parts except a piston and two spur gears working in oil—has made possible their wonderful record of satisfaction.

Gar Wood Says:

"Two features of Wood-Detroit Hydraulic Hoists are indicative of the care with which they have been fitted to the practical requirements of actual service:

"The high angle the body attains at the full travel of the hoist, assures quick, clean dumping of any load.

"The pivoting of the body so near the end, with but slight overhang, dumps in a compact pile and, when desired, allows a second load to be placed on the first."

Gar Wood

WOOD DETROIT

Hydraulic Hoists and Steel Bodies

are in use on practically every make of motor truck; and the completeness with which they dominate their market is made apparent by even the most casual observation wherever dump trucks are in use.

Wood Hydraulic Hoist and Body Co.

7924 Riopelle Street **Detroit, Michigan**

Sales and Service:

BOSTON, MASS. 3371 Washington St.
NEW YORK, N. Y. 721 E. 135th St.
PHILADELPHIA, PA. 3428 N. 18th St.
HARRISBURG, PA. Derry at 17th St.
PITTSBURGH, PA. 7501 Penn Ave.
SAN FRANCISCO, CAL., 51 Minna St.
BUFFALO, N. Y. 61 Peckham St.
CLEVELAND, OHIO 3533 Cedar Ave.
COLUMBUS, OHIO 32 E. Main St.
RICHMOND, VA. 19 S. Linden St.
KNOXVILLE, TENN. 320 S. Central Ave.
CHICAGO, ILL. 3751 Wentworth Ave.
MILWAUKEE, WIS. 1027 Rogers St.
MINNEAPOLIS, MINN. 528 University Ave.
ST. LOUIS, MO. 1110 N. Ninth St.
KANSAS CITY, MO. 509 W. Fifth St.
LOS ANGELES, CAL., 165 E. Jefferson Ave.
DALLAS, TEXAS 406 N. Lamar St.
DENVER, COLO. 18th and Wazee Sts.
SALT LAKE CITY, UTAH 141 Pierpont Ave.
SEATTLE, WASH. 1406 Tenth Ave.
PORTLAND, ORE. 900 Sandy Blvd.

Canadian Factory: 1025 Tecumseh Road, Windsor, Ontario

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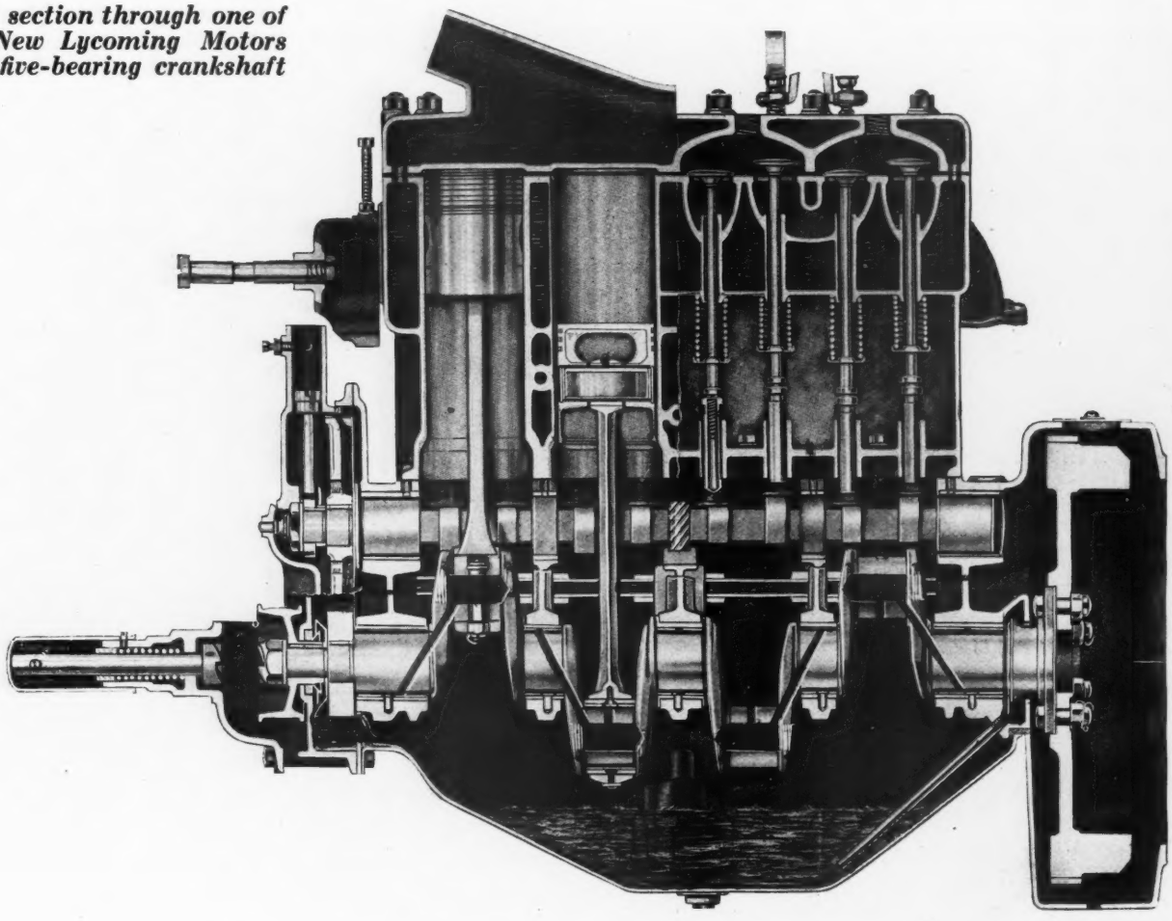
Cross section through one of the New Lycoming Motors with five-bearing crankshaft



The ideal speed truck motor is a "four" and in these ***New*** Lycoming Motors (three models) you will find a flexibility of power and smooth running you have heretofore associated only with engines of more cylinders and at the same time unusual simplicity and accessibility to all working parts that is an item of real economy in operation and maintenance.

It will be well worth your while to find out more about the ***New*** Lycoming Motors. Full details will be sent promptly on request.

The Purpose *of the* RED HEAD

The Red Head on all new Lycoming "Fours" is used irrespective of size or specifications. Therefore, when seen in either passenger cars or trucks, it may be on any of four different models, solely for the purpose of indicating them as motors made by Lycoming.

Lycoming Motors Corporation

Williamsport, Pa.

Years Ahead in Motor Efficiency

The New LYCOMING Motors

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A 3½ Ton Diamond T Truck Equipped With Morand Cushion Wheels Owned by United Dressed Beef Co. of New York City

Take It Easy!

MORAND Cushion Wheels make truck life easier for the driver, the truck, the load, and the fellow who pays upkeep costs.

Ordinary troubles can't touch the Morand protected truck, because Morand protection actually means the reduction of costs, repairs and delays to the lowest possible figure per mile.

You can afford to take it easy on Morands; they save money, time and trouble.

There is a Morand Cushion Wheel for any size or make of truck. There is also the Morand Demountable Cushion Element which replaces giant pneumatics without wheel change. Write us for further information.

The Morand Cushion Wheel Co.
800-906 South May Street
Chicago, Ill.

MORAND CUSHION WHEELS

"When Can I Get Her?"

"Oh in about half an hour. I can slap in a new AMERICAN spring in no time. I carry them in stock and they fit."

AMERICAN Spring service stations live up to such promises because AMERICAN Springs are accurately built to go into place without adjustment or fussing. And the satisfaction the customer takes in getting his car back on time grows daily as he learns how good his new spring really is.

AMERICAN Springs

AMERICAN AUTOPARTS COMPANY

9779 French Road Detroit, Michigan

Write for Catalogue *Distributors Everywhere*

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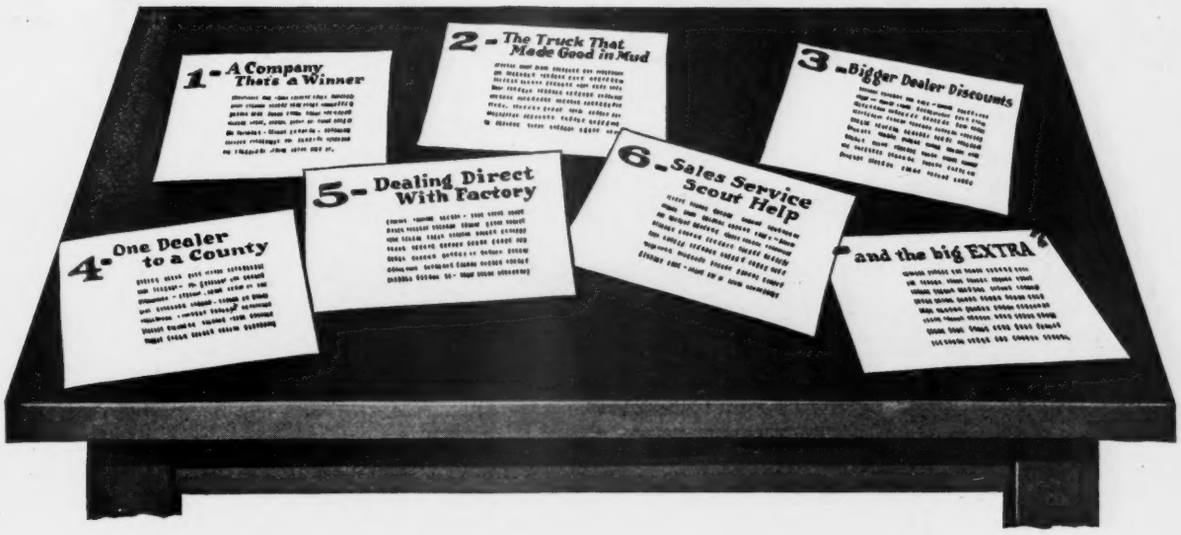

1- A Company That's a Winner
2 - The Truck That Made Good in Mud
3 - Bigger Dealer Discounts
4- One Dealer to a County
5- Dealing Direct With Factory
6 - Sales Service Scout Help
and the big EXTRA

We're Laying Our Cards on the Table

THE DEALER is the man who sells. He should have his *full* reward. We're going to give him bigger discounts.

Deal *direct* with dealers—Have one dealer to a county—And do our best to make this arrangement so profitable to the dealer and us that it will continue year after year.

Our production is limited, even tho it's growing. We can serve only a few new dealers. But we will serve them directly and generously.

If you want to get in the game read the next three pages

Here's Our Idea of a

1—A Company That's a Winner

Combine the good judgment of long experience with the aggressive ambition of youth, and you've a combination that always wins.

We have 'em both—plus *products* that have stood the test of time.

The Bessemer Motor Truck Company has been building and selling Bessemer Trucks for over eleven years. Bessemer is now a part of a bigger, sounder organization, formed by consolidation with the younger American Motors Corporation (manufacturers of American Motor Cars). In its new form it has all the vigor and aggressive ambition of youth together with the good judgment of long experience.

2—Truck that Made Good in Mud

Big mileage over *smooth* roads—that's common. But *mileage in mud* really *means* something. Bessemers are built to pile up *mileage in mud* in the hills of Pennsylvania—to give *years* of *service* where *roads are ruts.* Rugged, sturdy brutes, these Bessemers. As hardy and strong as the oil men who first used them eleven years ago. Pull through anything—never balk. Keep going year after year in the grinding kind of service that would rip the heart out of most trucks.

So the product is *right*—the kind you can sell to make mileage in *mud,* if need be.

3—Bigger Dealer Discounts

We are giving our dealers the distributor's discount.

By dealing *direct* with dealers we can increase the dealers' margin. That means *more profits for our dealers.*

Just figure it this way: Every 5% we *increase* your margin is 5% *additional profit.*

You can *make more money* on *fewer sales* if you sell Bessemers. And we'll venture a bet that you'll be giving your *customers* more for their money.

BESSEMER MOTOR TRUCK COMPANY

Motor Truck Division of Bessemer-American Motors Corp.

PHILADELPHIA and GROVE CITY, PA.

Eleven Successful Years Building Fine Trucks

Square Deal for Dealers

4—One Dealer to a County

And that means just what it *says*—One dealer to a county, that dealer having the *exclusive* contract to sell Bessemers in that territory.

He may appoint *sub-dealers* if he cares to—or he may use a plan we have in mind to help him *cover* the county.

But the county is his, exclusively—and we'll back him up *to the limit.*

5—Dealing Direct with Factory

We have eliminated the middle man.

We believe in doing business *direct*—going to the man who sells and see that he gets the *best* deal we can give him.

So we're crowning the dealer "King"—believing that such an arrangement will be more profitable to the *dealer* and to us, and that it will develop more satisfactory and permanent business relations.

6—Sales-Service Scout Help

Sales-Service Scout is the Bessemer factory representative who spends *all* his time helping Bessemer dealers sell Bessemers and give service.

He's a real salesman—not the "have-a-smoke-when-yuh-gointer-lunch" variety. He *works for you*—We pay his expenses. Doesn't cost you a cent—But we guarantee he'll *make* you some *dollars.*

These Sales-Service Scouts are at *your* service—an extra man for *you.*

AND the Big EXTRA ⟶

BESSEMER MOTOR TRUCK COMPANY

Motor Truck Division of Bessemer-American Motors Corp.

PHILADELPHIA and GROVE CITY, PA.

Eleven Successful Years Building Fine Trucks

And Here's the Big EXTRA—

—A Double Barrelled Opportunity*

Add to the profitable Bessemer line, with its squarest of deals for dealers,—

Add the *American Passenger Car,* with its 25,000 mile Around the World Guarantee, and you've a Double-Barrelled opportunity that comes only once in a lifetime.

A Brougham that fulfills the heart's desire in comfort, convenience and elegance. Touring and Sport Models whose beauty invites and delights—whose willing power defies the steepest hill.

True American Beauties, these wonderful cars, yet as sturdy and strong as their Bessemer brothers who can pile up their mileage in mud.

The gun's in your hands, all ready to shoot. Pull *both* triggers and then—*let's go.*

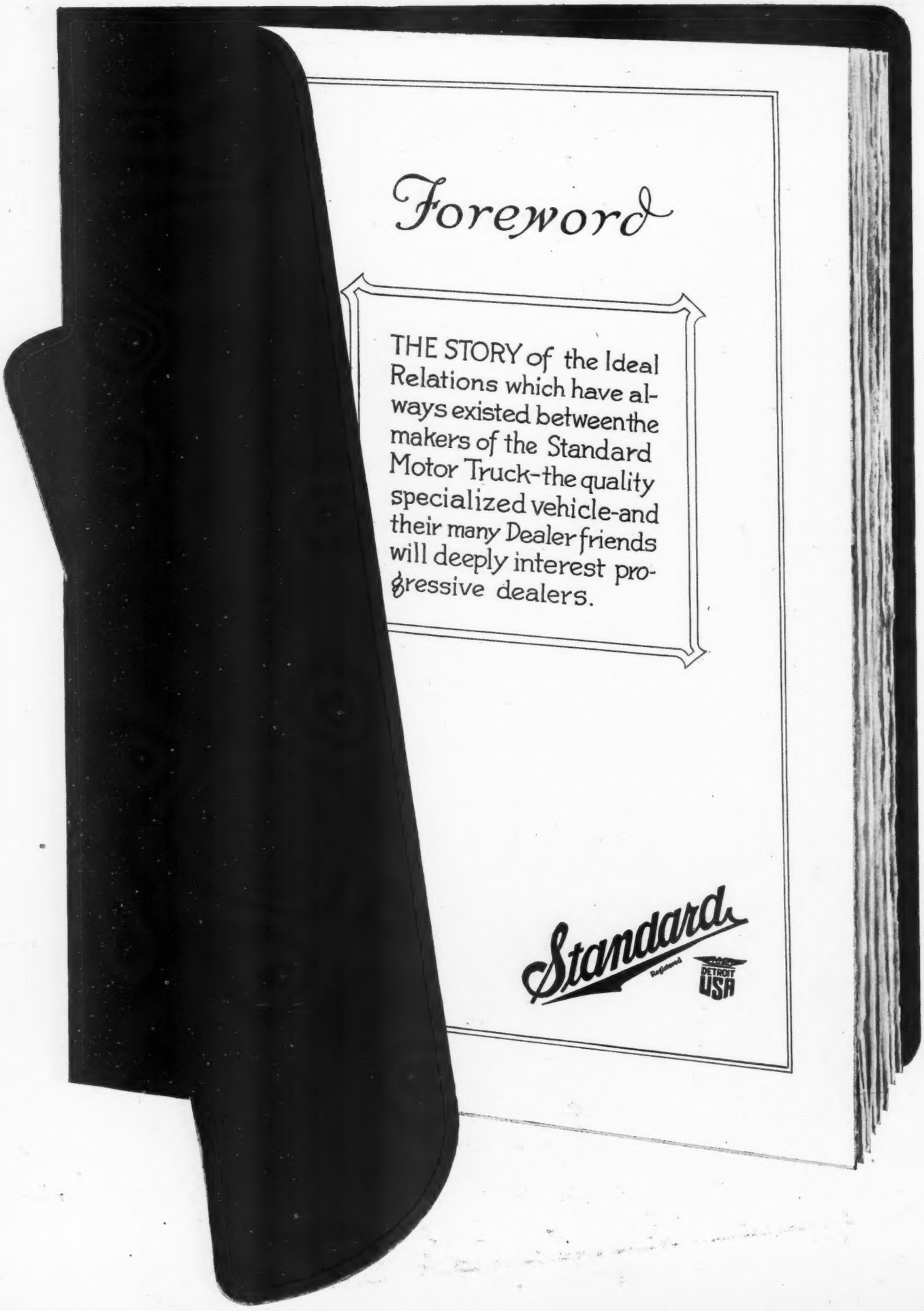
BESSEMER MOTOR TRUCK COMPANY

Motor Truck Division of Bessemer-American Motors Corp.

PHILADELPHIA and GROVE CITY, PA.

The Bessemer Line includes 1, 1½, 2½, 3 and 4-ton models with every variety of body equipment. The new 3-ton Bessemer is the finest truck ever built. You'll say so too when you see it.

* As a matter of policy the sales of Bessemer Trucks and American Motor Cars are handled independently. There is no obligation on the part of Bessemer dealers to take on the passenger car line—but Bessemer dealers have *first call* on the American franchise.


Foreword
THE STORY of the Ideal Relations which have always existed between the makers of the Standard Motor Truck-the quality specialized vehicle-and their many Dealer friends will deeply interest progressive dealers.
Standard
DETROIT USA

"Shall We Buy or Build?"

This question has to be answered, of course, for every part of every car. The better car builders undoubtedly consider in connection with this, *first,* assurance of a standard of quality, efficiency, uniformity and the best engineering practice in relating that part to the other units in the car.

Second, they consider a reliable source of supply.

Third, in which all other builders join them, they consider cost.

This last point of itself prevents Timken from serving those who underestimate the importance of the first point.

It is rather significant, however, that in the list of Timken equipped cars are several whose makers had previously built their own axles—and very efficiently, too; and who have recently expressed to us their conviction that Timken service is thoroughly satisfactory on *all three counts.*

We'd like to help you focus the microscope on some of the real costs of home-made axles.

THE TIMKEN-DETROIT AXLE COMPANY, DETROIT, MICH.
Sole Representatives in the British Isles:
AUTOMOTIVE PRODUCTS COMPANY, 3, Berners Street, London, W. 1.

Those who agree with us on axle standards of size, strength and quality are seldom disturbed by price considerations.

THIS SYMBOL IN ANY ADVERTISEMENT MEANS: SEE "CHILTON AUTOMOBILE DIRECTORY" FOR COMPLETE BUYING INFORMATION

DILEMMA

In analyzing your tire trade you doubtless find that it falls into two main classes—

(A) The car owner who buys strictly on price and insists that you back up the tire's dependability.

(B) The car owner who buys established quality at a reasonable price.

"A" is your problem. If you won't stand back of the tire your customer may walk out. If you do, and it fails to make good, you must make good. In either event you lose the customer's confidence in your house and your merchandise.

Diamond can lead you out of this dilemma. It makes several styles of tires, all highly dependable, and at a low final cost.

THE DIAMOND RUBBER COMPANY, Inc., *Akron, Ohio*

Diamond Tires

FOR PASSENGER AND COMMERCIAL VEHICLES

DIAMOND CORD DIAMOND PNEUMATIC TRUCK CORD DOUBLE DIAMOND FABRIC

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DIXON'S 677

For Transmission and Differential Gears

A lubricant of long life—when used in gear-boxes.

It insures quiet running and easy gear shifting, and low power consumption.

JOSEPH DIXON CRUCIBLE CO.

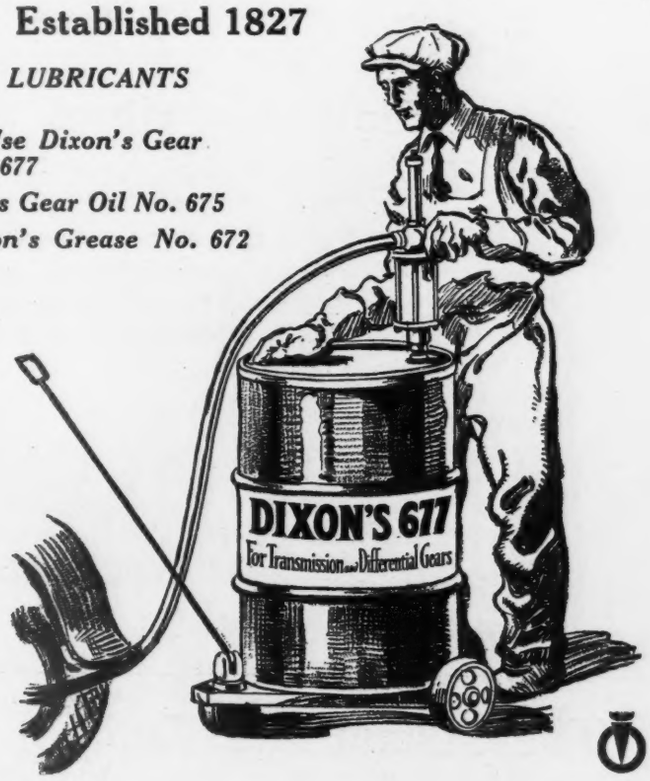
Jersey City, N. J. **Established 1827**

MAKERS OF QUALITY LUBRICANTS

For Spur and Bevel Gears Use Dixon's Gear Lubricant No. 677

For Worm Drives Use Dixon's Gear Oil No. 675

For Universal Joints Use Dixon's Grease No. 672



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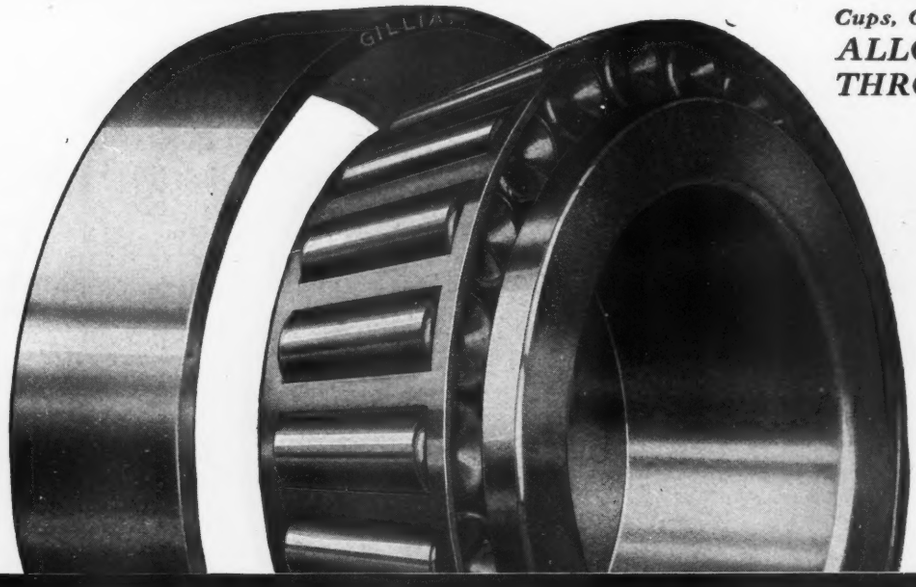

Cups, Cones, Rollers
ALLOY Steel
THROUGHOUT

The Rollers in GILLIAM Tapered Roller Bearings form true rolling cone lines when in operation, and they do not depend upon the cage to keep them in axial alignment. This is accomplished by the patented feature on the thrust rib of the cone.

Axle manufacturers using Gilliam Tapered Roller Bearings include: Adams, Clark, Columbia, Flint, Salisbury, Sheldon, Standard Equipment, Torbensen, U.S. Vulcan, Wisconsin.

GILLIAM TAPERED ROLLER Bearings

The Gilliam Mfg. Co. - - Canton, Ohio

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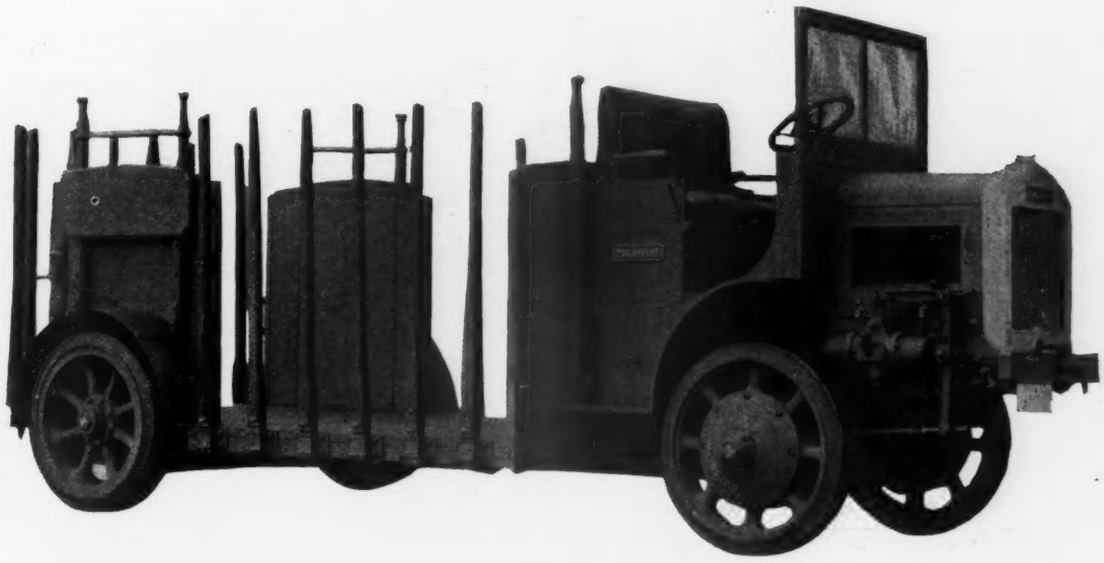

"MacDonald" Model "O" Low Body Dray

The Motor Vehicle You Will Eventually Buy to Reduce Your Haulage Costs

Load platform is 18″ from the ground.

Load platform can be made any distance above this dimension of 18″ above ground, to suit purchaser's choice, and without extra expense.

There are no shafts, gears nor mechanism of any sort underneath the body.

Load platform has greater area than any truck in the market of corresponding wheelbase.

Loading can be easily done by hand-truck direct on truck from either rear or side.

Front wheel drive and spring-supported power plant result in
50 per cent reduction in tire expense.
Prolonged life of power plant.
Extraordinary reliability under all conditions.

We will be pleased to furnish full information upon request.

MacDonald Truck Division—Union Construction Company

Works
Foot of 14th Street, Oakland, California
5th and Harrison Streets, San Francisco, Cal.

Also

Main Office
351 California Street, San Francisco, California
210 Los Angeles Railway Building, Los Angeles, Cal.

Catton Neill & Co., Ltd., Honolulu, T. H.

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The Need for Dependable Transportation

Opens a Remarkable Business Opportunity Are You Giving It Sufficient Thought?

How closely have you watched the advance of modern industrial conditions? Have you recognized these facts:

—that prosperity has returned for a lengthy stay?

—that the most conservative of financial writers do not hesitate to say so?

—that bankers say now is the time to engage in active campaigns?

—that the movement is in full swing and gathering momentum?

—that the factories are pouring their commodities into cars day and night?

—that a number of railroads are running trains as close together as possible and making use of every piece of equipment available?

This Is a Good Time to Decide

Have you taken steps to get your share of the profits?

Do you know that motor transportation has a big opportunity all its own, plus a large volume the railroads cannot handle properly?

Garford, a pioneer in Motor Transportation has organized its business to engineer transportion to the users requirements. With the Garford Sales Franchise you can have back of you this engineering service, plus the Garford reputation, plus a wide selection of models and equipment that enables you to meet the majority of transportation needs.

Add to these the Garford prices—the well known sales policy—the co-operation of a highly organized sales force and complete and thorough co-operation in sales promotion and advertising and you can see what the Garford Franchise means. Any Garford Dealer or Distributor will tell you an enthusiastic story. We invite your inquiry regarding open territory if you want to build a substantial, profitable business NOW.

The Garford Motor Truck Company, Lima, Ohio

Makers of Motor Trucks and Motor Busses

GARFORD

DEPENDABLE TRANSPORTATION

HOFFMANN

PRECISION ROLLER BEARINGS

For Heavy Loads and Hard Service

Standard and Self-Aligning Types

Heavy-duty units built to the highest standards of precision; affording maximum serviceability under conditions involving heavy loads, shocks, jars and vibrations; opening up new avenues to power saving and reduced upkeep costs; built in both standard and self-aligning types.

Our engineers will welcome an opportunity to work with yours, in the application of these high-duty, high-precision bearings to motor trucks, with a view to securing maximum anti-friction efficiency, minimum maintenance costs, and continuity of service.

THE NORMA COMPANY OF AMERICA

Anable Avenue Long Island City New York

Manufacturers of "NORMA" Precision Ball Bearings

THIS SYMBOL IN ANY ADVERTISEMENT MEANS: SEE "CHILTON AUTOMOBILE DIRECTORY" FOR COMPLETE BUYING INFORMATION

TRADE VEHISOTE MARK

Saves Money in Case of Accidents

Here's the result of a rough street collision. An expensively painted panel badly punctured. But notice that it has neither split nor cracked. Because it is a *Vehisote Wood-Fibre Panel.*

With a steel or wood panel an accident of this kind would compel the expense of a whole new panel. But with *Vehisote* here are the mortised inserts a few hours afterwards.

Here's the invisible repair job complete. Cost for perfect repairs $20.00. Time for painting damaged area 4½ days. These quick invisible repairs can't be made so perfectly—so easily—so economically on anything but a *Vehisote Wood-Fibre Panel.*

When the Smash-up occurs, a Vehisote Wood-Fibre panel can be repaired more perfectly—in less time—and at much less cost than any cheaper material.

A Vehisote panel may be **punctured** if hit hard enough, but it will not **split** or **crack,** only the spot hit is damaged.

An exactly fitted patch is quickly mitered in, and can be painted, varnished and rubbed down without removing the panel or repainting the whole design—frequently without laying up the car.

The lowest quoted estimate for a panel replacement of any other material is $51.00. But this is for a blank stock panel of steel. The design is extra.

A Vehisote panel can be repaired perfectly in one-quarter the time at one-third the cost for the next best substitute.

Jobbers Who Handle Vehisote Panels

The Scovel Iron Store Co., San Francisco and Los Angeles, Cal.; Waterhouse & Lester, San Francisco, Cal., Los Angeles, Cal., and Portland, Ore.; E. C. Kadow & Co., Chicago, Ill.; Mossman-Yarnelle Co., Fort Wayne, Ind.; Wm. Stockhoff, Louisville, Ky.; A. M. Wood Co., Charlestown, Boston, Mass.; Minneapolis Iron Store Co., Minneapolis, Minn.; Nicols, Dean & Gregg, St. Paul, Minn.; The Faeth Company, Kansas City, Mo.; Sligo Iron Store Co., St. Louis, Mo.; W. T. Crane Carriage Hardware Co., Newark, N. J.; Chas. Shick & Co., Trenton, N. J.; N. Langler & Sons, Brooklyn, N. Y.; C. H. Tiebout & Sons, Brooklyn, N. Y.; H. D. Taylor & Co., Buffalo, N. Y.; H. Hett & Sons, New York, N. Y.; W. E. Kleine & Co., New York, N. Y.; The G. B. Schulte Sons Company, Cincinnati, Ohio; Gerhab & Ludlam, Philadelphia, Pa.; Jacob Gerhab, Philadelphia, Pa.; Shadbolt & Boyd Iron Company, Milwaukee, Wis.

"Buy a Better Body"

The Pantasote Company

CHICAGO
Peoples Gas Bldg.

NEW YORK
11 Broadway

DETROIT
1446 Penobscot Bldg.

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A Line That Fits 1923 Conditions

WE anticipated 1923 business needs, two years ago, in designing a line of trucks to combine *speed, endurance and low cost.* UNITED dealers in all sections are doing a brisk business, because the UNITED models have no actual competition from any standpoint of comparison.

Transportation requirements, and the successful way to meet them, have been the subjects of constant study by UNITED engineers for over twelve years—as successful builders of high grade motor trucks.

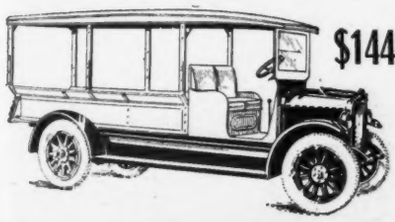
Now the Demand is for Speed Models

The UNITED Line of four proven speed models are now serving from coast to coast in almost every line of business that uses trucks of from 500 to 5000 lb. capacity. Simplification and interchangeability of parts of these four models makes the line ideal for the dealer, from a service standpoint, as well as a fine sales proposition.

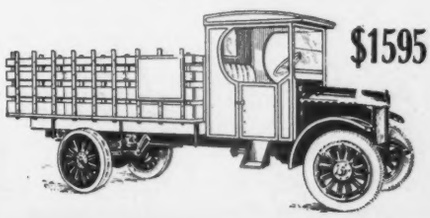
This may be your opportunity to become a bigger factor in the transportation field of your community. Much territory is now closed, but some sections are still open. Write us and find out about YOUR vicinity.

UNITED MOTORS PRODUCTS CO., Grand Rapids, Mich.

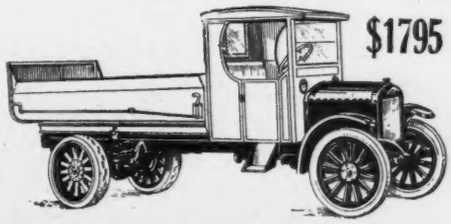
United Heavy Duty Express
For full ton-and-half load chassis



United Heavy Haul "35"
For all service up to 3500 lb. chassis



United Heavy Haul "50"
Capacity, 5000 lb. chassis



United

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REPUBLIC STAG

To Keep Trucks Moving Always—Everywhere

ROAD delays eliminated! Accidents due to faulty traction and skidding things of the past! "Ditching" and "spinning the wheels" done away with. The non-skid, solid-pneumatic truck tire has arrived. The Republic Stag is here! And it fits every wheel.

Republic Stags are real non-skid truck tires. Equipped with the famous Staggard Tread, they drive easily and hold the road. The studs wear down evenly and so insure maximum traction throughout the life of the tire.

The Stag is a most important addition to the complete Republic Truck Tire Line. Like its famous predecessors, the Hy-Top, the Regular and the Pneumatic Cord, it has all the qualities which make for long hard service.

Distributors who offer a complete service for mounting truck tires can increase profits by carrying this wonderful line. If you believe your service will meet Republic's standards write to the nearest Republic branch for descriptive booklets and an outline of the Republic franchise.

THE REPUBLIC RUBBER COMPANY
Youngstown, Ohio

New York Philadelphia Minneapolis Atlanta Chicago Kansas City Cincinnati Pittsburgh

REPUBLIC TIRES

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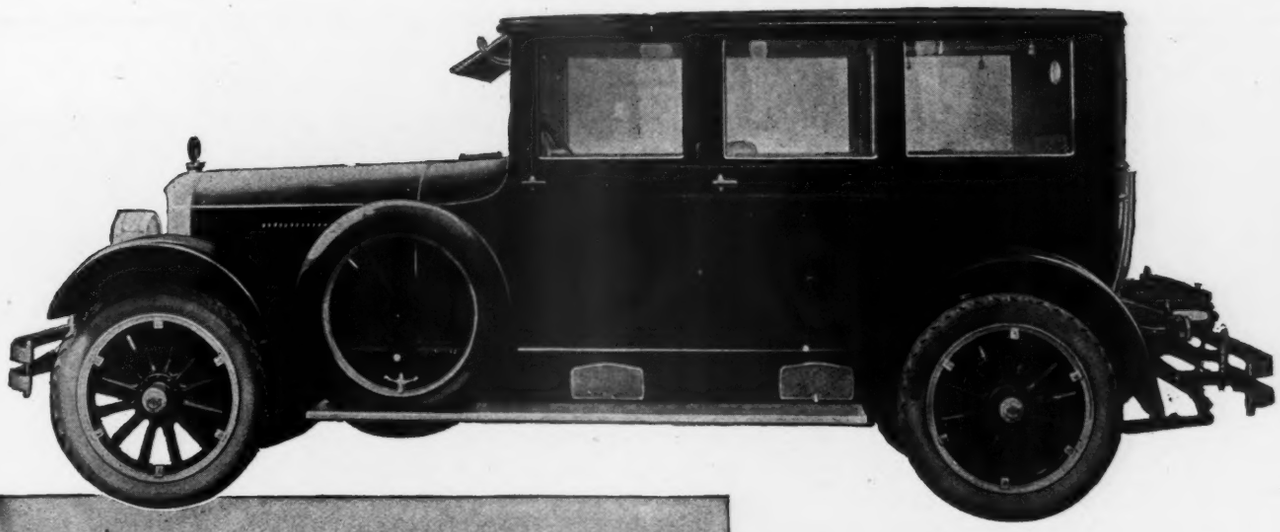


PAIGE-DETROIT

MOTOR CAR COMPANY

MANUFACTURERS

DETROIT, MICH., U.S.A.

HARRY M. JEWETT, PRESIDENT.
FREDERICK L. JEWETT, FIRST VICE PRESIDENT
GILBERT W. LEE, TREASURER
WILLIAM B. CADY, SECRETARY
SHERMAN L. DEPEW, CONTROLLER
W. A. WHEELER, VICE PRESIDENT, MANUFACTURING DIVISION.
HENRY KROHN, VICE PRESIDENT, SALES DIVISION.
T. BRADLEY, VICE PRESIDENT, PURCHASING DIVISION.
A. BACHLE, VICE PRESIDENT, ENGINEERING DIVISION.

January 8th, 1923. PLEASE REPLY ATTENTION OF A. Bachle.

Bowen Products Corp.,
Auburn, New York.

Gentlemen:

We are using your Bowen Empress High Pressure Lubricating System on all models of the 6-66 line with excellent results. Lubricating the chassis has always been neglected. With your device this work can be done with a saving of time, eliminating inconvenience to the operator.

The many features incorporated in your system can not help but be of interest to the car owner.

Yours very truly,

A Bachle

VICE PRESIDENT, Engineering Division.
PAIGE - DETROIT MOTOR CAR COMPANY.

AB:DC

Bowen-Empress

HIGH PRESSURE LUBRICATING SYSTEM

FOR ALL MOTOR CARS AND TRUCKS

Standard Equipment On The PAIGE

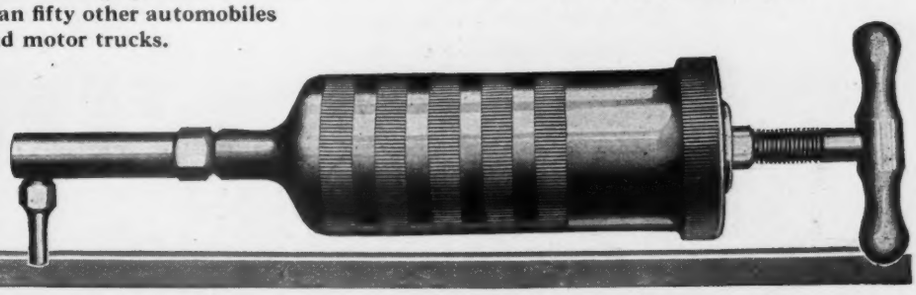
After numerous experiments and thorough tests in competition with other pressure lubricating Systems, Paige Engineers adopted the Bowen-Empress System as the most effectual means for providing proper and positive lubrication for the Paige Car.

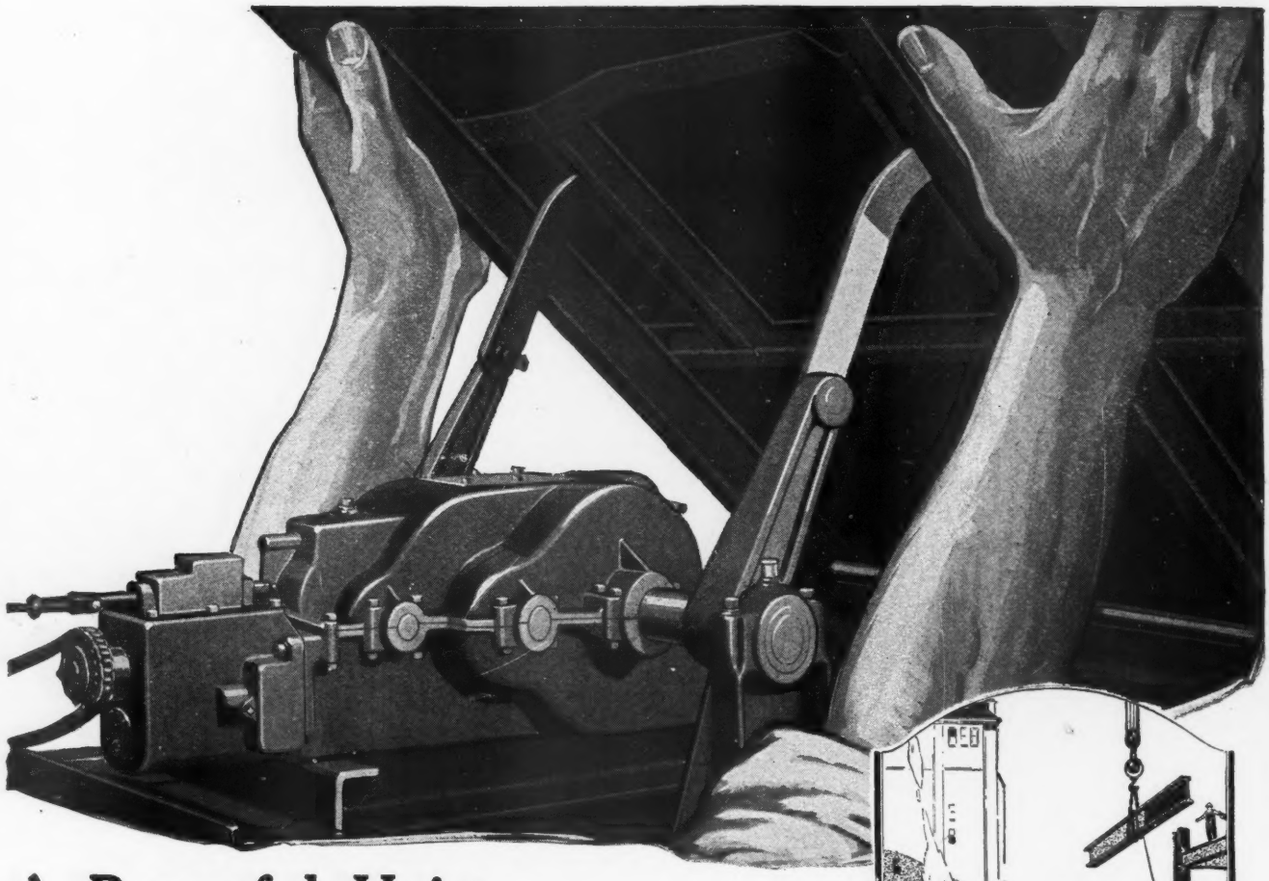
Write for Descriptive Folder No. F-302

Bowen Products Corporation

Auburn Division, Auburn, N. Y.

Standard equipment on more than fifty other automobiles and motor trucks.





A Powerful Hoist for Powerful Trucks

As dexterously as two giant human arms, the lift arm and link of the Van Dorn Horizontal Mechanical Hoist controls the truck body.

Smoothly and steadily the heavy load is lifted, held at or lowered from any angle up to 45°—the automatic stopping point. The body cannot settle slowly, nor tilt suddenly under the shifting of the pouring load.

As the hoist is reversed, the hoist arms pull down the body, folding up in compact jackknife manner to allow a low-set body and plenty of road clearance. The truck can be driving away while the body is lowering, the hoist stopping and disengaging automatically.

Send for our new catalog completely describing our Heavy and Light-Duty Horizontal and Vertical Mechanical Hoists and Dump Truck Bodies.

THE VAN DORN IRON WORKS COMPANY, CLEVELAND

An *Opportunity* for *Dealers*

Van Dorn Mechanical Horizontal and Mechanical Dump Truck Hoists mark a big advancement in truck-dumping mechanism. All leading truck manufacturers recommend Van Dorn Hoists. Dealers will find it profitable to handle our hoists. Full information as to agency plan sent on request. Write.

Van Dorn

MECHANICAL DUMP TRUCK HOISTS

BODIES — FRAMES — PRESSED PARTS

THIS SYMBOL IN ANY ADVERTISEMENT MEANS: SEE "CHILTON AUTOMOBILE DIRECTORY" FOR COMPLETE BUYING INFORMATION

Book of Samples FREE

Test It Yourself

We do not ask you to take anyone's sayso about the use of Genuine Keratol for upholstering.

Its beauty of finish; its pliability; its rugged resistance to wear and hard usage; its stain-proof, grime-proof surface; the wide variety of colors and grains—see them all for yourself.

Send the coupon in the corner for a generous book of samples.

Rub them between your fingers. Pull and twist them. Pound or try to scuff them. Smear them with dirt—or mud—or grease.

You are the judge. You have the final say.

Clip and sign the coupon NOW. Find out how Genuine Keratol adds value—appearance and salability to your product—at smaller costs that mean more profits. Don't delay these profits.

Clip and Sign the Coupon Now

This Coupon May Save You a Month's Profit This Year

THE KERATOL COMPANY
NEWARK, N. J.

Without obligation, please send me your **FREE** sample book, so I can see and test Genuine Keratol for myself.

Name .....

Address .....

.....

THIS SYMBOL IN ANY ADVERTISEMENT MEANS: SEE "CHILTON AUTOMOBILE DIRECTORY" FOR COMPLETE BUYING INFORMATION

More Motor Truck Per Dollar Than Ever Before!

That is the Day-Elder promise for 1923. And it is based on the one true gauge of motor truck value—the ability to render steady, consistent, day-in, day-out service, under all conditions.

To back up that promise, the Day-Elder Motors Corporation is turning out for 1923 a truck even better in many ways than the truck of former years, upon the excellence of which the company's present prosperity was built.

With a new and improved motor—with a better transmission and a more powerful rear axle—with every essential unit *serviced from one end of the country to the other*—this 1923 Day-Elder is the most "hard-working" motor truck any man could buy, at any price.

And the price is fixed at such a sensible figure that the Day-Elder dealer can actually *invite* price comparison with perfect equanimity. That—plus a new and really unique dealer contract—is what is making the Day-Elder line so profitable for the present dealers.

If you aren't making the profits and the sales you think you ought to make with the line you are now handling, write us. We can show you the way to better business over the Day-Elder route.

DAY-ELDER MOTORS CORPORATION
Newark New Jersey

DAY-ELDER
Worm-Drive MotorTrucks

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Two truck tires in one—

The Goodrich Semi-Pneumatic

Most efficient all-around truck tire ever produced because it combines the ruggedness and long life of the solid with much of the easy riding qualities of the pneumatic.

Contains an air chamber which permits the tire to "give" under the weight of the load or when the going is rough. Scientific construction of tread surface and side walls produce remarkable non-skid and "digging out" properties.

The tire of which it has been said—"it acts like a pneumatic but wears like a solid."

Adds to the general all-around usefulness of your truck and the comfort of your driver. Low operating cost. Send for a copy of our booklet "*Two Tires in One*" which gives full particulars.

THE B. F. GOODRICH RUBBER COMPANY
Akron, Ohio

Goodrich Pneumatic TRUCK TIRE

Fits any S. A. E. standard wheel. No extra costs. No special wheel equipment. No flanges. No bolts. Applied at any service station with a hydraulic press, the same as solid tires. Just as quick and easy.

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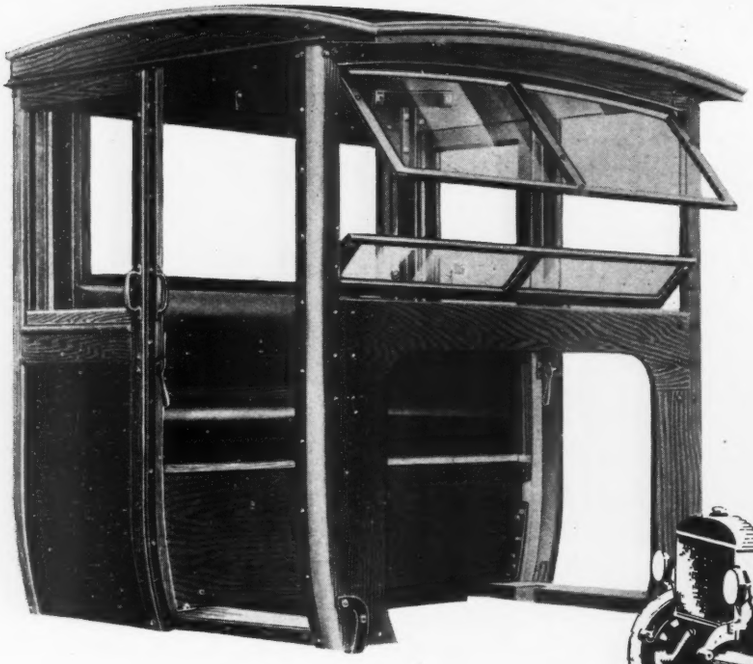
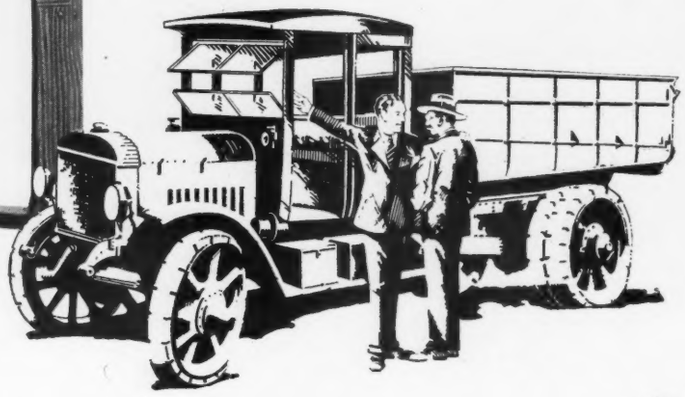


The Only Unqualified Cab Guarantee

The RAIN OR SHINE Cab is the only cab which carries an unqualified guarantee from the manufacturer to replace any cab that does not hold up.



Cab Comfort Features as a Selling Force

Practically every owner of motor trucks realizes that the degree of riding comfort obtained by his truck drivers fairly determines the amount of care they will exercise in operating his trucks.

That is why the truck you sell should be equipped with a **RAIN OR SHINE** Cab—the comfort-cab de luxe.

Its cleverly balanced wood and steel construction makes it the most comfortable cab on the market. It is flexible. It absorbs vibration. It does not rattle or rumble.

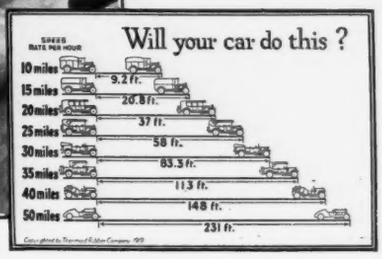
A cab engineering triumph of the first magnitude, it embodies the best points of the all-wood and all-steel types—without their shortcomings.

Specify the **RAIN OR SHINE** Cab! Then you can take full advantage of the extraordinary comfort features of this long-lived cab, to more quickly "close" truck sales—*for a double profit.*

Some Splendid Distributorships still open for the intelligent type of business man who will make the most of a RAIN OR SHINE Cab Franchise—plus our vigorous co-operation.

THE GENERAL WOODWORK CORP., Cincinnati, Ohio

RAIN OR SHINE TRUCK CABS



Famous Thermoid Standard Chart — shows distances in which car should stop if brakes are efficient. Brakes lined with Thermoid meet these standards.

"It comes already compressed— saves you money on adjustments"

Read how thousands of Thermoid dealers are increasing their brake lining business

"Here's one brake lining we've never had a kick on," said the garage man. "It's Thermoid, and it's dense and firm because it's got *40% more material* compressed into it than any other lining made. We save money for our customers on it because it needs less adjusting than ordinary linings."

This is true. What's more, this tremendous hydraulic compression gives your customers absolute safety from the first day on. Thermoid is so dense and compact that it brakes without having to wear down and "squeeze out" for a certain period on the brake drum.

Why Thermoid is last to "squeeze out"

We take the "squeeze" out of Thermoid in the factory—in its place we put *40% more material* That's why Thermoid is last to "show the fuzz" between drum and brake band. That is also the reason for the longer life of a Thermoid Lining.

Remember this: when you reline with Thermoid, you're giving your man not only absolute protection and longer wear, but a definite money saving through fewer needed adjustments.

This year, millions of motorists will learn these facts about Thermoid through our national advertising. To get your share of this business, write for prices and full information about the sales helps furnished to all Thermoid dealers.

THERMOID RUBBER COMPANY

Factory and Main Offices, Trenton, N. J.

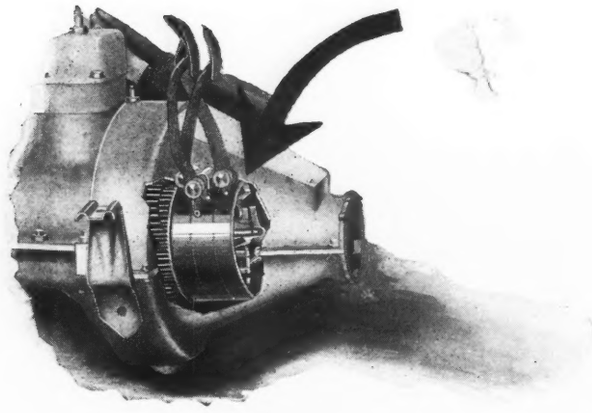
New York	Chicago	Los Angeles	Detroit
Cleveland	Kansas City	Seattle	Atlanta
Boston	London	Paris	Turin

The new Thermoid Brake Relining Machine. Cuts time 60%—does a better job than old hand methods. Price $15. Write for special offer to Thermoid dealers.

Thermoid Brake Lining

Hydraulic Compressed

Makers of "Thermoid-Hardy Universal Joints" and "Thermoid Crolide Compound Tires"



A motor problem of ten years' standing—*solved!*

A Ford transmission lining that *will not foul the oiling system*

Since the beginning, the transmission lining has meant a choice of two evils for every Ford owner.

Untreated lining—made of cotton—with poor gripping power and poorer wearing quality—

Or treated linings that grip better—but dissolve their compounds in the oil and destroy its lubricating value.

After long experiment, the Thermoid engineers perfected a lining that is *absolutely insoluble in oil.* It is called Rexoid.

On the right is shown a startling test made for this lining in the laboratories of Princeton University.

The beakers held five different makes of transmission lining, and the same grade of oil as lubricates both cylinders and transmission in Ford cars. After only six hours, four of the five linings had partially dissolved their treating compounds.

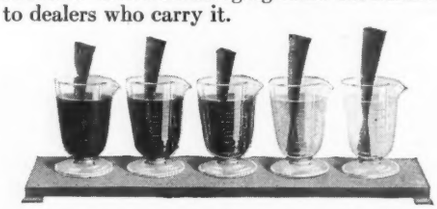
The oil in the fifth beaker was clear as when new. It held the strip of Rexoid.

ONLY in Rexoid do you find this insoluble compound. Hydraulic pressure compresses it into every fibre of a high-grade woven fabric. Compound and fabric become one solid mass.

This hydraulic treatment gives Rexoid

1. More material to the square inch
2. A smoother, more uniform surface and a longer life.

Now, at last, Rexoid provides the necessary high co-efficient of friction without fouling up the oil. It's easy to sell, just tell Ford owners about it. Rexoid is bringing home the business to dealers who carry it.



After 48 hours in oil, four makes of lining, A, B, C and D, had discolored the oil, giving off tar and other harmful ingredients. The only lining that did not foul up the oil was E—Rexoid.

Leading jobbers carry Rexoid. If your jobber cannot supply you, write us direct, giving his name.

THERMOID RUBBER COMPANY

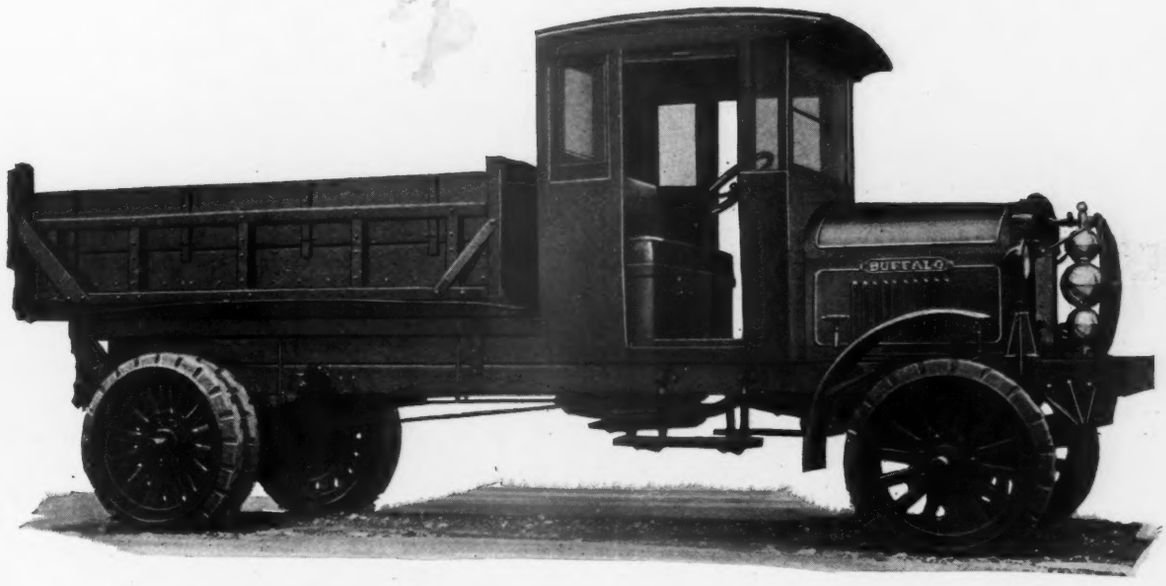
Factory and Main Offices, Trenton, N. J.

New York	Chicago	Los Angeles	Detroit
Cleveland	Kansas City	Seattle	Atlanta
Boston	London	Paris	Turin

REXOID

Transmission lining for Ford Cars

"BUFFALO TRUCK"

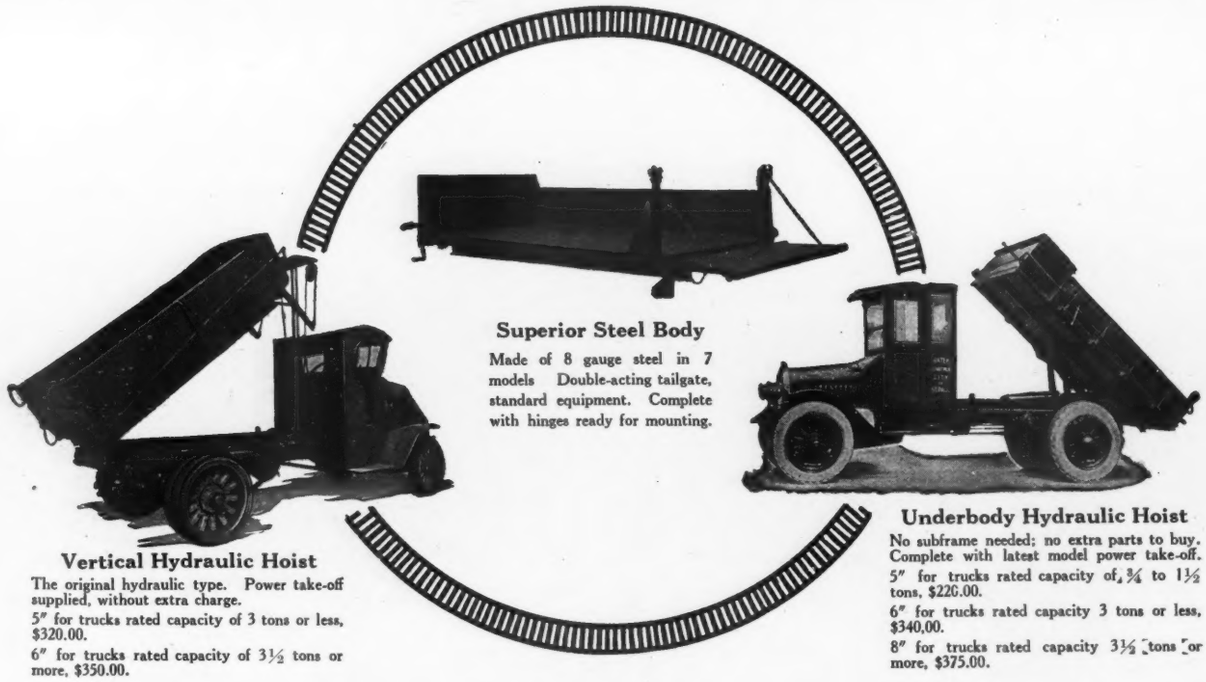


THE TRUCK THAT SELLS
(DEALERS WANTED)

Buffalo Truck and Tractor Company

Factory: Clarence, N. Y. *Office:* 1487 Main St., Buffalo, N. Y.

THIS SYMBOL IN ANY ADVERTISEMENT MEANS: SEE "CHILTON AUTOMOBILE DIRECTORY" FOR COMPLETE BUYING INFORMATION



Superior Steel Body

Made of 8 gauge steel in 7 models Double-acting tailgate, standard equipment. Complete with hinges ready for mounting.

Vertical Hydraulic Hoist

The original hydraulic type. Power take-off supplied, without extra charge.

5″ for trucks rated capacity of 3 tons or less, $320.00.

6″ for trucks rated capacity of 3½ tons or more, $350.00.

Underbody Hydraulic Hoist

No subframe needed; no extra parts to buy. Complete with latest model power take-off.

5″ for trucks rated capacity of ¾ to 1½ tons, $220.00.

6″ for trucks rated capacity 3 tons or less, $340.00.

8″ for trucks rated capacity 3½ tons or more, $375.00.

St. Paul Hoist Dealers Will Get Their Share of This $700,000,000

$700,000,000 (estimated) is available for road-building operations in 1923.

St. Paul Hoist Dealers are going to get their share of this huge sum because—

They will prove to road makers that St. Paul hydraulic hoists are exceptionally powerful and ideally suitable for the severe requirements of road-building operations—

They will readily demonstrate that these extremely efficient and economical one-man operated hoists can dump ¾ ton to 15 ton loads in 30 seconds—

They offer a complete range of sizes of these original hydraulic hoists, including a new underbody model for trucks of ¾ ton to 1½ ton capacity. There is a widespread demand for an efficient hoist of this size.

Specially designed to fit the chassis you sell, each hydraulic hoist gives your road-contractor customers the lasting service they demand.

Spring road-building operations are just about being started. If you aim to get your share of this $700,000,000, write at once for the liberal St. Paul proposition.

Hydraulic Hoist Mfg. Co., 292 Walnut St., St. Paul, Minn.

Agencies and Service Stations

BALTIMORE, MD., Kunkel Service Co., Light and Lee Sts.
BILLINGS, MONT., F. B. Connelly Machinery Co.
BIRMINGHAM, ALA., Birmingham Motor Co.
BUFFALO, N. Y., Truck Equipment Co., 1016 Lafayette Ave.
CAMBRIDGE, MASS., Springfield Com'l Body Co., 80 Charles River Road
CHICAGO, ILL., Jacob Press' Sons, 501 W. 33rd St.
CINCINNATI, OHIO, The Bode Wagon Co., 1649 Central Ave.
CLEVELAND, OHIO, American Coach and Body Co., 3809 Clark Ave.
DAVENPORT, IOWA, Hydraulic Hoist Co., 417 W. 3rd St.
DETROIT, MICH., Hydraulic Hoist Mfg. Co., 5730 Michigan Ave.
KANSAS CITY, MO., National Steel Products Co., 1611 Crystal Ave.
KANSAS CITY, MO., Standard Steel Works, 16th and Holmes Ave.
LOS ANGELES, CAL., Arthur L. Eaton, 3769 Moneta Ave.
MINNEAPOLIS, MINN., Hydraulic Hoist Co., Hennepin and 10th Ave., S. E.
NEWARK, N. Y., Arcadia Trailer Corporation
NEW YORK CITY, N. Y., Interboro Hoist and Body Corp., Borden Ave. and Van Dam St., Long Island City
OKLAHOMA CITY, OKLA., American Tank Co.
PHILADELPHIA, PA., Rodenhausen's Excelsior Wagon Works, 1437 N. Hutchinson St.
PITTSBURGH, PA., Hydraulic Hoist and Body Co., Braddock Ave. and Kensington St.
PORTLAND, ORE., Fred Dundee, E. Water and Salmon Sts.
ST. LOUIS, MO., Rogers Schmitt Wire and Iron Co., 1815 N. 23rd St.
SAN FRANCISCO, CAL., Arthur L. Eaton, 40 McDougal Court
SEATTLE, WASH., Earl B. Staley Co., 1002 E. Seneca St.
SPOKANE, WASH., March-Strickle Motor Co.
SPRINGFIELD, MASS., Springfield Com'l Body Co., 385 Liberty St.
WASHINGTON, D. C., Witt Will Co., Inc., 52 N St., Northeast.

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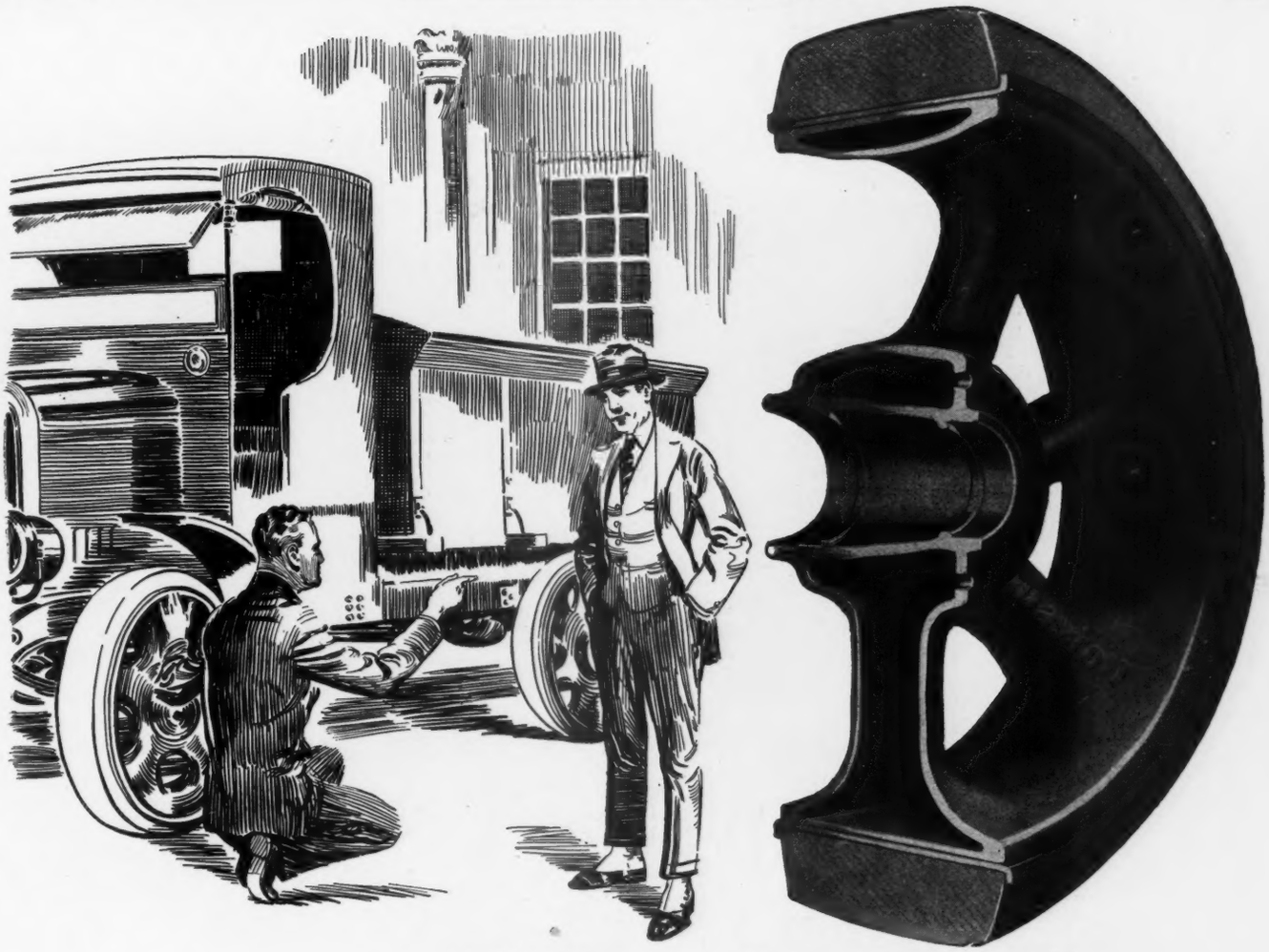

Hollow Construction Keeps Tire Upkeep *Down*

Tire expense is an item every truck user knows something about.

So when you explain these hollow-construction, tire-saving features of the Dayton Steel Wheels on your truck—you've got your customer immediately interested.

Heat generated by friction of tire against roadbed is rapidly cooled in the hollow Dayton Steel Wheel.

The hollow spokes and rims make a set of Dayton Wheels as much as 100 pounds lighter than other makes—which increases tire mileage.

Being permanently round and true, hollow-constructed Dayton Wheels never develop flats. Tires wear evenly—and last longer.

Specify Dayton Wheels—for easier truck sales.

The Dayton Steel Foundry Company Dayton, Ohio

Furnished for Solid or Pneumatic Tires and Any Standard Front or Rear Axle

Dayton
Steel Truck Wheels

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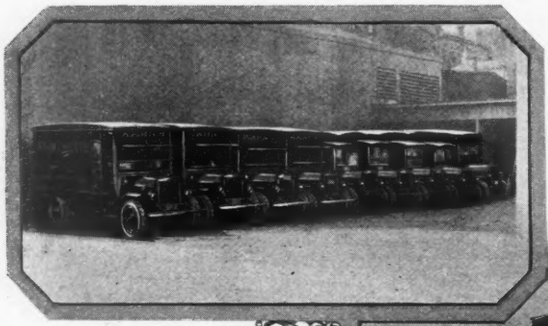
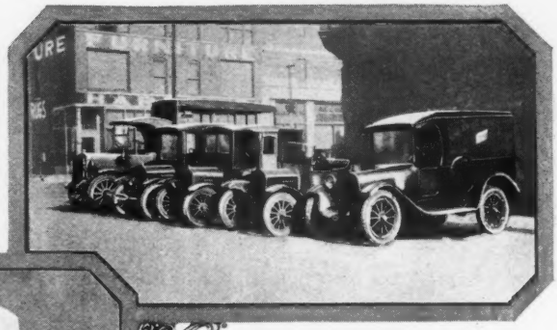
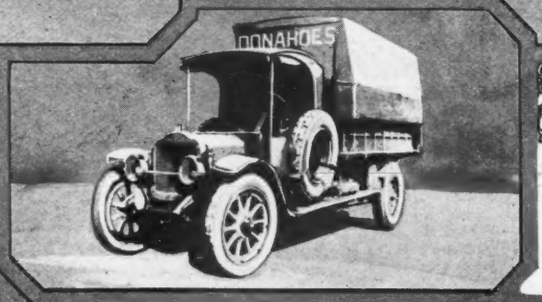
Still More Proof of Real Worth— Great Meat Fleets Swing to Generals



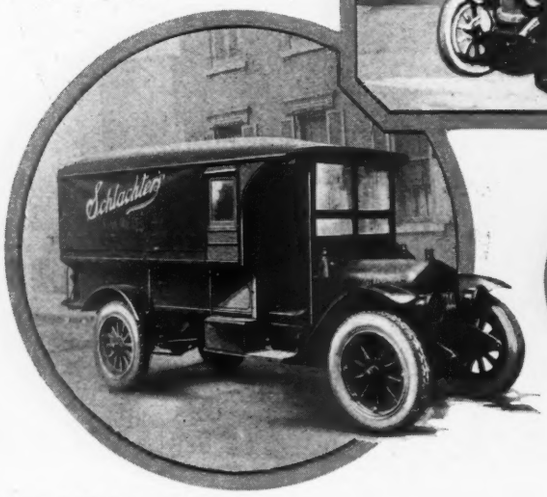
"The service we have been receiving from General Tires is such that we have decided to use Generals exclusively," says Mr. Dan Cummings, of the Englewood Sausage Co., of Chicago. Five of their trucks are shown here.

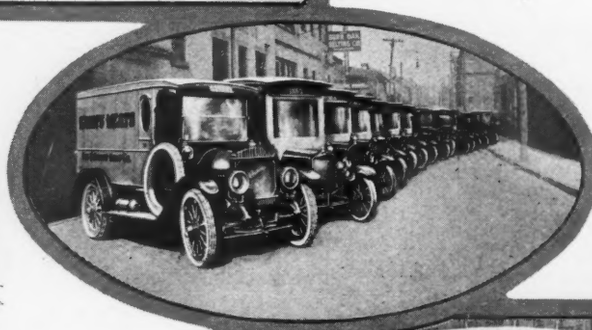


Nine of Kahn's 27 trucks that carry meats through Cincinnati and nearby towns. All have a General on each wheel. In addition, the 20 cars of Kahn's salesmen are 100% General equipped.



Pittsburgh is another great General Tire town. This photo shows one of Donahoe's trucks with a General on each wheel. Donahoe's entire fleet, used for trucking meats and groceries, is equipped with Generals.





The E. Kahn's Sons Co., another big Cincinnati meat wholesaler, has found that 100% General equipment means better service, quicker service and lower tire bills. Their 13 trucks—all General equipped—are shown here.

Six trucks like this carry fine meats to Cincinnati meat dealers for the Jacob Schlachter's Sons Company, of that city. All ride on Generals exclusively. This company also operates 4 passenger cars — all likewise 100% General equipped.

With a General on each wheel, 10 big Packard trucks like this one carry John Hilberg & Son's meats to Cincinnati's retail meat dealers. In addition, the 10 cars which they maintain for their salesmen are 100% General equipped.

—goes a long way to make friends

THE GENERAL CORD TIRE

THE GENERAL TIRE AND RUBBER CO.
Akron, Ohio, U. S. A.

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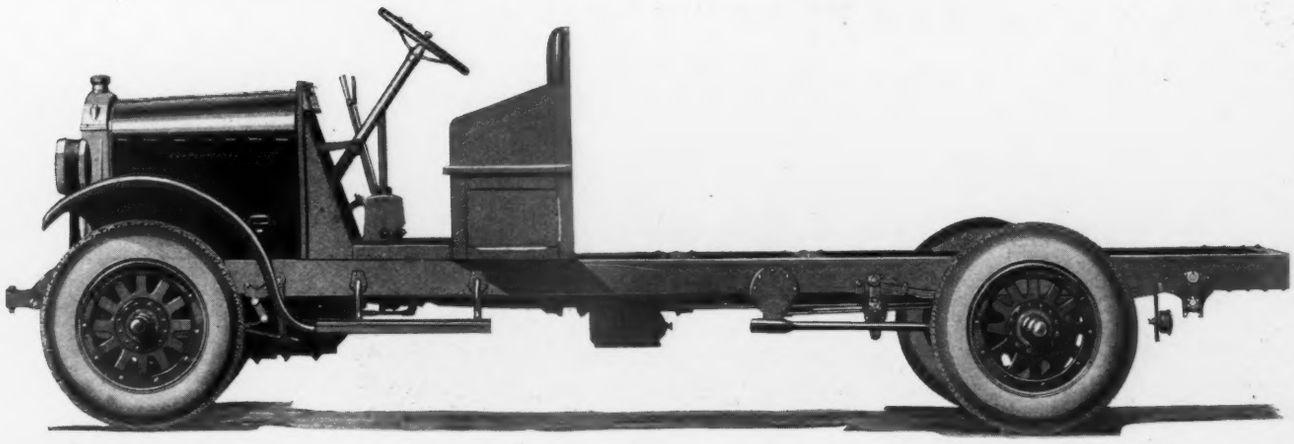


Commerce TRUCKS

Model 14

~is getting the orders!

Commerce Dealers Everywhere Are Proving It

KEEN competition or no competition—no matter—for the dealers who offer Commerce Model 14.

1½ ton capacity—it meets the majority of trucking needs.

Talking points? It has hundreds of them. And backs every one up with real performance.

Balanced to the greatest degree yet attained, it cuts strain and wear to the minimum. Low hung, it handles easily.

The aluminum shell radiator is distinctively Commerce.

Commerce Model 14 trucks are completely equipped, having electric lighting and starting systems, electric horn, driver's seat, bumper, front fenders and step.

Truck and passenger dealers who are out to make money *selling* trucks should investigate the clean-cut Commerce line of three remarkable chasses and the Commerce square deal.

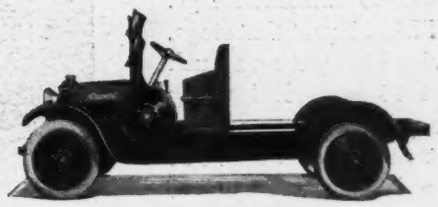
COMMERCE MOTOR TRUCK COMPANY
7424 MACKIE STREET DETROIT, MICH.
Export Department: 132 Nassau Street, New York City

1½ Ton Capacity

Standard of the Average Trucking Need

The perfect truck for general hauling, cartage, interurban trucking, lumber hauling, department store delivery, farm hauling, etc.

Continental J-4 Removable Cylinder Head Motor, Aluminum Shell Radiator, Brown-Lipe Main Frame Transmission and Multiple Disc Clutch, Timken Worm Drive Rear Axle, Heavy Pressed Steel Frame, Radius Rods.



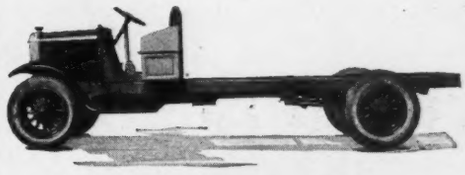
Model 9

SPECIAL DELIVERY

1500 Pounds to 2500 Pounds Payload Capacity

Continental Red Seal Motor, Salisbury Spiral Bevel Gear Rear Axle, Detroit Gear and Machine Co. Three-Speed Truck Transmission.

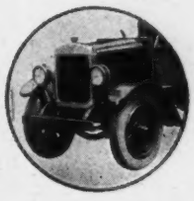
Get the rest of the facts.



Model 25

2½ Ton Capacity

PERFECTLY BALANCED
SKILFULLY ENGINEERED



Our determination to build the finest 2½ ton chassis on the market has met with a success in Model 25—acclaimed by the entire truck world.

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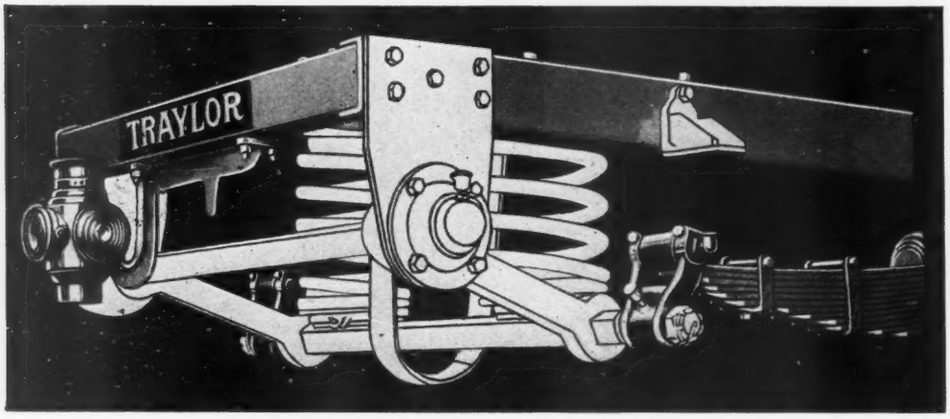


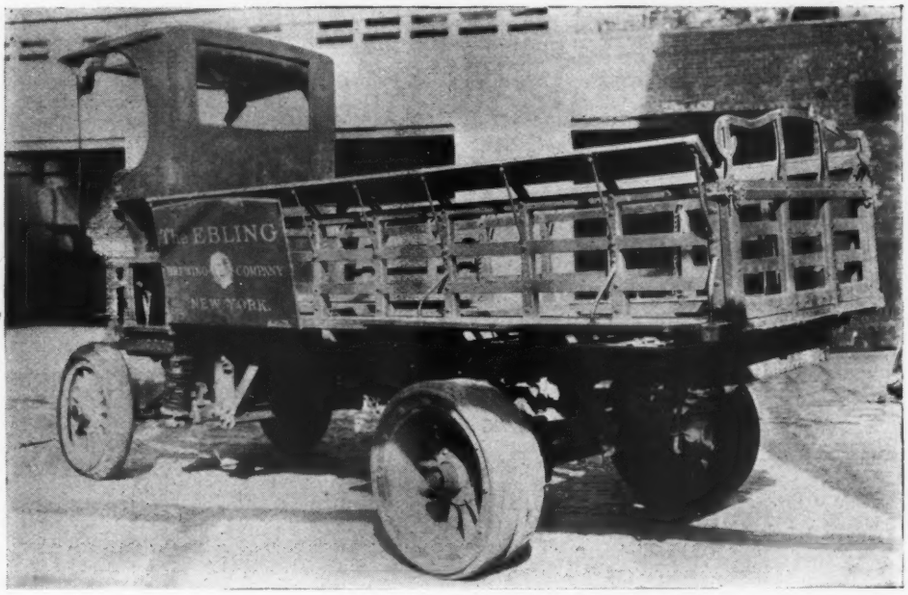
Two giant helical springs and a hinge make up the device. These springs, that reinforce the ordinary truck springs, are prevented from acting independently. The connecting hinge compels them to function together. Instead of one or the other absorbing impacts separately, they combine forces and work together regardless of on which side the impact may occur. By combining the action of these two powerful coils, the rigid hinge lifts the axles and wheels out of the holes; floats body and load; checks and absorbs vibration.

Satisfied Users

The public today does not buy a product until it is past the experimental stage. HIFLEX is past that stage, having been put on a truck in 1914 and still going strong. The owners claim that this truck would not have lasted so long had it not been equipped with HIFLEX.

Because HIFLEX—

Absorbs all road shocks
Gives at least 1-3 more tire mileage.
Shows a substantial saving in gasoline
Obtains greater traction



Mack Truck owned by The Ebling Brewery Co. of New York, equipped with HIFLEX in 1914 and still doing heavy work. Only one of the many satisfied users. We will gladly furnish the names of others

Traylor Engineering & Manufacturing Co.

ALLENTOWN, PENNA.

Factory Branches:

PHILADELPHIA: 921 Thompson St. **NEW YORK CITY: 218-226 Spring St.**

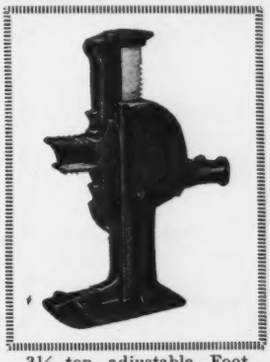
TRAYLOR
IT FITS THE ROAD
FOR MOTOR TRUCKS
HIFLEX
AND MOTOR BUSSES
SPRING SUSPENSIONS

THIS SYMBOL IN ANY ADVERTISEMENT MEANS: SEE "CHILTON AUTOMOBILE DIRECTORY" FOR COMPLETE BUYING INFORMATION

A strong and reliable 5 ton Truck Jack, fitted with quick hand adjustment.

Two and one-half ton Truck Jack.

Three, five or seven and one-half ton quick-acting Truck Jack.



3½ ton adjustable Foot Jack. This foot may be used as side lift, as shown, or turned over as an extension top.

The Most Complete Line of Jacks in the World

BUCKEYE

Ten ton Telescopic Truck Jack. Jack stands 10⅝" high and has a continuous lift up to 23½" high and operates on ball bearings. Unusually powerful, convenient and efficient jack. Recommended for trucks with large pneumatic tires.

Ten ton Automatic Lowering Jack for general purpose or automotive uses.

Five ton Automatic Lowering Truck or General Purpose Jack.

The *Buckeye* line of jacks is complete. It includes all the most popular types for light or heavy passenger cars or trucks.

For that reason, manufacturers who wish to equip their cars with jacks can find just the model they need—*made by a factory on a production basis which brings costs to a minimum.*

Likewise, dealers and jobbers who want to sell the most profitable line of jacks find that Buckeye fills their needs. For the line includes also many of the best selling jacks today. Patented by us and *made by no other jack manufacturer.*

It will undoubtedly pay you to get our catalog describing our entire line of jacks. It will be sent to you on request.

Write for It

THE BUCKEYE JACK MFG. CO.
ALLIANCE OHIO

THIS SYMBOL IN ANY ADVERTISEMENT MEANS: SEE "CHILTON AUTOMOBILE DIRECTORY" FOR COMPLETE BUYING INFORMATION

Because GMC trucks have opened up new avenues of profits to truck owners by providing the means to haul by truck in places where it has never before been practical, GMC dealers are enjoying added prosperity to that which now is being experienced all through the motor truck industry.

GMC dealers have something more than a truck to sell. They have a new kind of transportation—one with more possibilities.

There is an opportunity for a GMC dealership in every city and town in the country where GMC trucks are not now represented.

Write for further information.

GENERAL MOTORS TRUCK COMPANY — *Pontiac, Michigan*
Division of General Motors Corporation

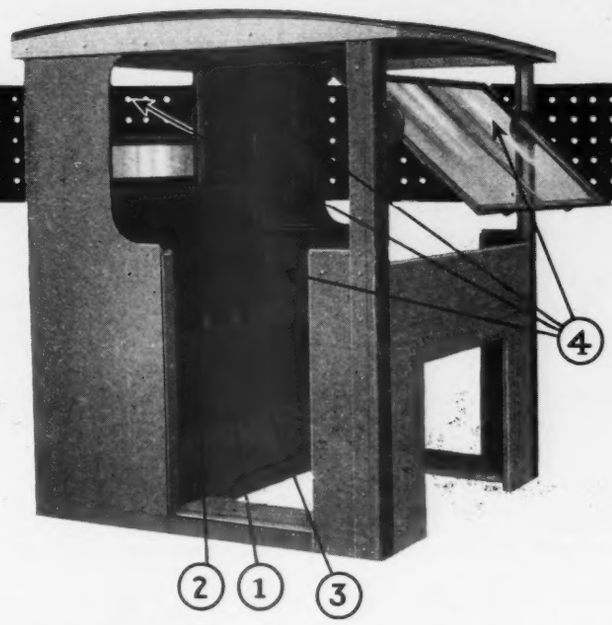
General Motors Trucks

THIS SYMBOL IN ANY ADVERTISEMENT MEANS: SEE "CHILTON AUTOMOBILE DIRECTORY" FOR COMPLETE BUYING INFORMATION

Here's the Cab to Sell!

1 Seat cushions in pairs, 6″ deep, hair padded over double cone spring frame. A mighty comfortable cushion and one that will stand up.

2 Lazy back is 17″ high. It is hair padded over special spring frame 4½″ deep. Touring car type.



3 Optional height and width of seats to provide desired sitting position.

4 Possible wide open or tightly closed positions provide absolute comfort as to weather conditions.

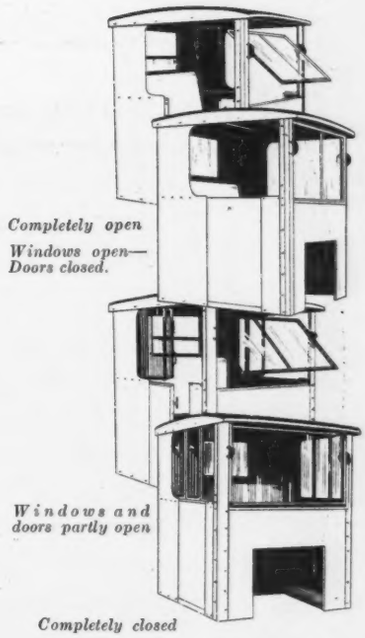
Fits Any Make or Model of Motor Truck

You will make more sales and avoid lots of bother by selling the Field Universal Cab.

It's not necessary to display a lot of costly models that tie up your capital and occupy floor space if you sell the Field. One cab is all you need to place on your floor to sell Fields. Nor do you have to thumb thru catalogs to find whether you can supply a cab for some particular model of a certain motor truck. You know that the Field can be easily adjusted to serve the purpose. It is constructed to be adjustable in any dimension necessary to fit any motor truck. That's all there is to it.

Selling Field Universal Cabs is *simplified cab selling* with a vengeance and any truck dealer who takes on a cab to sell as a side-line *wants simplified selling.* He's too busy selling trucks to be involved in too extensive a line of cabs. The Field Adjustable Model makes the ideal cab for you to sell. Don't you feel that way about it?

The Field Liberal Discount Arrangement is something that will make you want to sell Field Cabs right away when you hear about it. We'd like the opportunity to tell you *all* about it. At least hear our story. It's worth-while. May we hear from you?



FIELD BODY CORPORATION
OWOSSO MICHIGAN

Field UNIVERSAL Cab
FITS ANY TRUCK

THIS SYMBOL IN ANY ADVERTISEMENT MEANS: SEE "CHILTON AUTOMOBILE DIRECTORY" FOR COMPLETE BUYING INFORMATION

Express!

Express Companies have always employed the most expedient methods of transportation. Therefore they are real prospects as purchasers of the electrically-equipped motor truck.

Their trucks leave their loading platforms loaded down with a hundred crates and packages to be delivered to a hundred different places. The deliveries must be speedy and reliable—therefore, the need of the electrically-lighted truck, the truck that will start when the driver steps on the electric starter, the truck that is ready for day and night service.

Motor Trucks that are equipped with Westinghouse Starting, Lighting and Ignition Apparatus are prepared for the hardest and most intensive truck service. Not only does this equipment have the rugged strength of the best of materials used in its manufacture but it has been built under the direction and supervision of Westinghouse Automotive Engineers. Westinghouse Automotive Service completely covers the country.

WESTINGHOUSE ELECTRIC & MANUFACTURING COMPANY
Automotive Equipment Department
Sales and Service Headquarters: 82 Worthington St., Springfield, Mass.

Westinghouse

STARTING, LIGHTING & IGNITION

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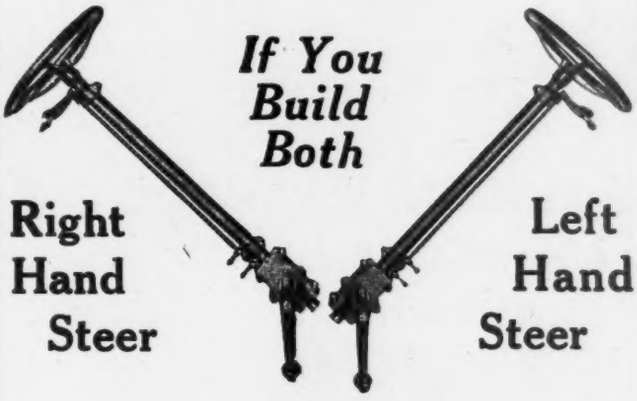
Use a Lavine



If You Build Both

Right Hand Steer

Left Hand Steer

THE

Interchangeability of the Lavine Will Interest You

The same stock gear is used for either right or left steer.

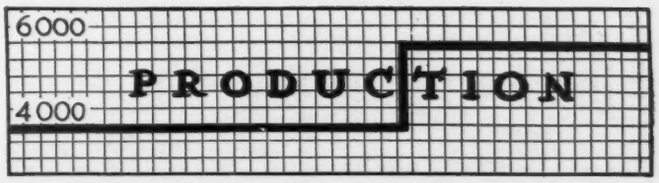
No Adjustment
No Machining
No Keeping Two Stocks

DOUBLY ATTRACTIVE IS THE FACT

That each and every part of the Gear itself is absolutely interchangeable.

HEAT TREATMENT GIVEN PARTS is Second to None

LAVINE GEAR CO.
MILWAUKEE WISCONSIN



1000 shift levers cleaned for 5¢ with Oakite!

50% Boost in production—

6,000 levers a day are now produced in this auto plant, as against a former 4,000 with the same equipment and labor for this operation. This increase is due to improved methods for cleaning before assembling.

The savings brought about by this increase in production are of even greater importance than the low unit cost of cleaning.

Assembling is easier because the work is clean; time is saved; and inspectors report that instead of scrapping 12%, rejects amount to less than 1%.

On a production of 400,000 levers a month this reduction from 12% to less than 1% is a strong testimony to the importance and value of proper cleaning methods.

Experience such as this suggests the value of scientific cleaning methods. There may be room for improvement in the method you use in cleaning your work. We have had over 14 years' experience in thousands of industrial plants. It is likely that we can help you with your individual problem.

May we offer you specific suggestions? There is no obligation. The burden of proof is on us.

* A very interesting account of this work written by the Safety Engineer of the plant, appeared in the February Oakite News Service. We'll be glad to send you a copy.

There are 65 Oakite Service Men, cleaning specialists, located at: Allentown, Pa.; Baltimore, Boston, Bridgeport, Brooklyn, Camden, Cedar Rapids, Chicago, Cincinnati, Cleveland, Dallas, Dayton, Denver, Des Moines, Detroit, Erie, Evansville, Ind.; Grand Rapids, Greenville, N. C.; Harrisburg, Hartford, Indianapolis, Kansas City, Los Angeles, Louisville, Milwaukee, Minneapolis, Montreal, Newark, New Haven, Philadelphia, Pittsburgh, Portland, Me.; Poughkeepsie, Providence, Reading, Rochester, Rockford, Rock Island, San Francisco, Schenectady, Seattle, St. Louis, Toledo, Toronto, Utica, Waterloo, Williamsport, Pa.; Worcester.

Oakley Chemical Co. *General Offices:* 38 Thames St., New York, N.Y.

OAKITE

Industrial Cleaning Materials

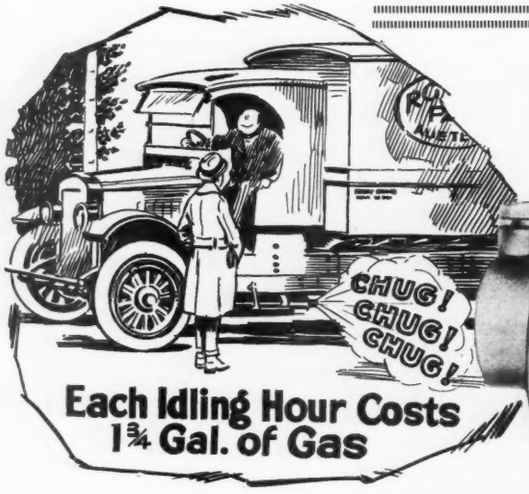
THIS SYMBOL IN ANY ADVERTISEMENT MEANS: SEE "CHILTON AUTOMOBILE DIRECTORY" FOR COMPLETE BUYING INFORMATION

Investigate

the NEW DENBY MODELS for 1923 and the very interesting and attractive sales contract offered RESPONSIBLE DISTRIBUTORS and DEALERS. Your territory may be open.

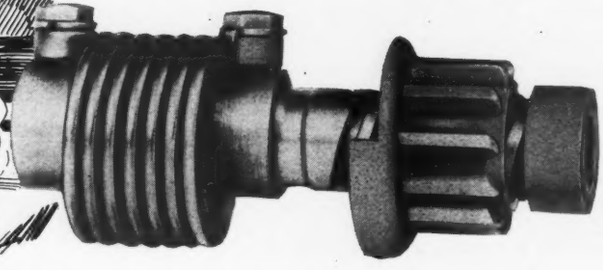
DENBY MOTOR TRUCK COMPANY

DETROIT, MICHIGAN



BENDIX DRIVE

for Electric Starters on Trucks



Automatic Engaging and Disengaging

BENDIX DRIVE

As long as truck drivers must crank their engines, they will let them "idle" while standing. Each idling hour costs 1¾ gallons of gas. An hour a day costs *over $100 a year.*

Numberless engines have been ruined because an oil line, pump or radiator has clogged while their drivers left them, idling. Incalculable damage to universal joints, jack shafts and gear sprockets has resulted from drivers coasting down grade and throwing in the clutch to start.

Drivers whose trucks are equipped with electric starters *don't do these things.* The saving is the truck owner's.

Bendix Automatic Drives for electric starters are absolutely automatic—certain in action—with fewer parts than any other drive. They require a minimum of care and attention.

An electric starter, equipped with the Bendix Drive, will save every truck owner money in the savings it will effect. Let us show you.

Eclipse Machine Company **Elmira, N. Y.**

THIS SYMBOL IN ANY ADVERTISEMENT MEANS: SEE "CHILTON AUTOMOBILE DIRECTORY" FOR COMPLETE BUYING INFORMATION

A Complete Piston Service

Here is a new and broader opportunity for garagemen, dealers and jobbers! The Inland line of Piston Products is now complete—to the famous Spiral-cut ring and Oiless ring has been added the new StepSet ring and a full line of high-quality Replacement Pistons and high-grade Piston Pins.

Inland Spiral Cut

The ace of one-piece, high-compression piston rings. Inland heat treatment gives the ring just the proper tension by setting metal structure—cannot warp or buckle. Velvet finish.

Price, $1.00 and Up

Inland Oiless

A high-compression ring that *also* has oil-wiping features. Upper groove forms lubricating pocket—stops oil pumping. Lower groove wipes oil. Heat treated. Velvet finish. Friction surface reduced.

Price, 50c and Up

The New StepSet Ring

A new Inland ring. STEP cut and tension SET by a newly developed mechanical process. Tension setting process also makes inside filing unnecessary. Plush finish.

Price, 30c and Up

What the Complete Inland Line Means to You

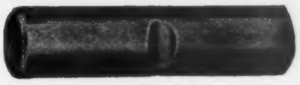
The possibilities of the Inland line have always been good, as every garageman, dealer and jobber knows. *Now they are better!* You can now offer your customers a complete Inland Piston service, and this, in plain business English means greater profits from a more extended field with no added sales effort.

The New Inland Replacement Piston

A strictly high-quality replacement piston which offers a precise duplicate of the original manufacturer's equipment—weight, design, materials and finish are correct.

Know the Complete Inland Line—Then Sell It

Garagemen, dealers and jobbers! Sell the complete line of Inland Products. It means more satisfied customers and greater profits, with less sales effort, from a quality line that is *favorably known all over the world.*



The New Inland Piston Pin

A finely-machined product that has a hard, glass-smooth surface and is unusually tough. Furnished in standard and special sizes for all types of motors.

Send for Interesting Booklet

Write for our interesting booklet, "The Story With a Ring to It." Learn all about the great Inland line and get our schedule of prices, attractive discounts and general sales information.

INLAND PRODUCTS CO., Inc.

Branches and Stocks in Principal Cities

Main Office and Factory: ST. LOUIS, U. S. A.

INLAND

If you were buying trucks instead of selling them—

These are some of the things you would recognize in the new Atterburys:

Latest type Continental motors, Brown-Lipe transmissions, Spicer shafts and universals, Timken worm drive axles, Spring Perch springs, Gemmer and Ross steering gears, Long radiators, Eisemann magnetos, Delco generators, Stewart Warner gasoline feed, Zenith carburetors, Alemite lubrication, cabs, complete equipment

and

a method of chassis fabrication which, through its self-evident mechanical perfection, stands out as the final result of our twenty years' experience in building motor trucks and nothing but motor trucks.

Those are some of the things upon which truck buyers are already sold.

They are some of the mechanical standards of value that are responsible for the traditional Atterbury reputation for economical performance.

We would like to have you send for a portfolio illustrating and describing some of the points of design which are exclusively Atterbury and which result in owner satisfaction—the only sure road to dealer success.

ATTERBURY MOTOR CAR COMPANY

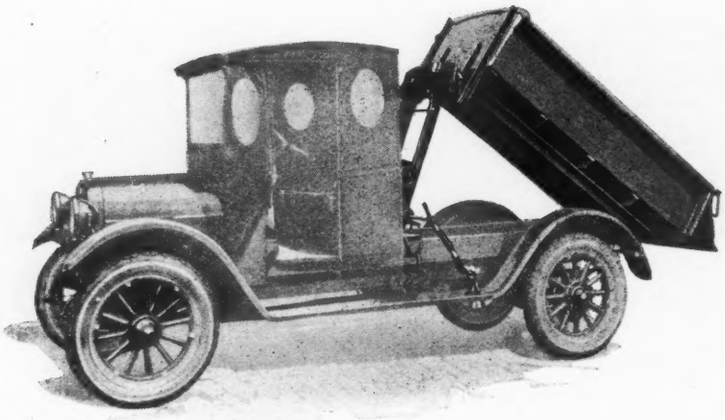
Elmwood Ave. at Hertel **Buffalo, N. Y.**

MOTOR TRUCKS OF ATTERBURY MAXIMUM SERVICE

ATTERBURY

1903-1923

TWENTIETH ANNIVERSARY



STRENGTH—

Galion Allsteel Dump Bodies are built to stand the strain of constant use. The heavy angle irons which support the body, the electrically-welded construction, and the ten-gauge metal used throughout insures a long period of useful operation.

Durability is built into every Galion body—and there is a model for every requirement.

Write for your copy of our catalog

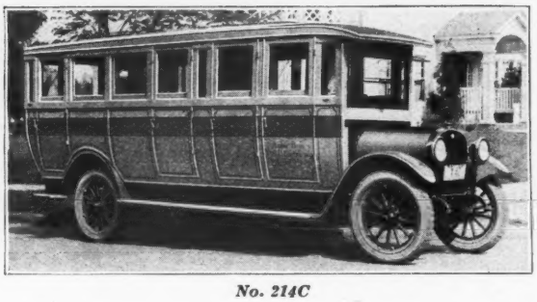
THE GALION ALLSTEEL BODY CO.
Galion, Ohio

McKay Bus and School Bodies

Builders of Passenger Vehicles Since 1867

A FULL LINE OF CROSS, SIDE OR COMBINATION SEATED BUS BODIES FOR ANY MAKE OF CHASSIS

BUILT IN ANY CAPACITY



No. 214C

THE BEST-BUILT BUS BODIES ON THE MARKET AT THE PRICE

AN ATTRACTIVE PROPOSITION TO MANUFACTURERS AND DEALERS

ASK FOR FULL INFORMATION

McKAY CARRIAGE COMPANY GROVE CITY, PA.
DISTRIBUTING BRANCH
LANSING BUS COMPANY, LANSING, MICH.

THIS SYMBOL IN ANY ADVERTISEMENT MEANS: SEE "CHILTON AUTOMOBILE DIRECTORY" FOR COMPLETE BUYING INFORMATION

MILEAGE—THE FOUNDATION OF ALL COST-FIGURING

The simplest cost-system takes mileage and checks it against operating cost. The most complicated report rests likewise on *cost per mile.*

Obviously, then, this basic data must be accurate, or the whole super-structure of your accounting falls into error.

Veeder

HUB ODOMETERS

go with *safe* cost-systems and sound economy measures.

If your truck mileage costs and your plans for *reducing* them have their basis in Veeder records, then will you get the savings you *figure* to get—and *should* get.

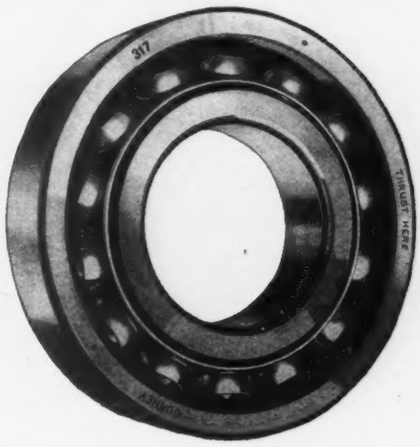
REGULAR MODEL. $20.00
FORD TRUCK MODEL . . . $15.00

Informative circular on request

The Veeder Mfg. Co.
10 Sargeant Street Hartford, Conn.

Sales and Service Stations in

Atlanta, Ga.
Baltimore, Md.
Boston, Mass.
Buffalo, N. Y.
Chicago, Ill.
Cincinnati, Ohio
Cleveland, Ohio
Denver, Colo.
Detroit, Mich.
Indianapolis, Ind.
Kansas City, Mo.
Los Angeles, Cal.
Montreal, Quebec
New York, N. Y.
Philadelphia, Pa.
Pittsburgh, Pa.
Rochester, N. Y.
St. Louis, Mo.
St. Paul, Minn.
San Francisco, Cal.
Syracuse, N. Y.
Tacoma, Wash.
Toronto, Ont.
Washington, D. C.
—and other cities.



A Tried Unit

WHY throw away money experimenting with bearings of unknown quality? Gurney Bearings—whose worth has been proven in innumerable installations—gives longer and better service.

Save money by making your initial installation Gurneys, and obtain that feeling that your bearing problem is permanently solved.

Gurney Engineering Service is always available. Write

Gurney Ball Bearing Co.
Conrad Patent Licensee
Jamestown, N. Y.

(18147)

GURNEY
BALL BEARINGS

THIS SYMBOL IN ANY ADVERTISEMENT MEANS: SEE "CHILTON AUTOMOBILE DIRECTORY" FOR COMPLETE BUYING INFORMATION

No. 108
Special
Rattan

HALE & KILBURN

Motorbus Seats

Our Patented

Space Saving Feature

Gives 1½ Inches More Space for Knees of Every Passenger

WRITE FOR PARTICULARS

No. 108
Special
Leather

With Thirty Years' Experience as Largest Makers of Passenger Vehicle Seats We Can Solve Your Seating Problems

Hale & Kilburn Corporation

American Motor Body Co.
Successors

Works: **1800 Lehigh Ave., Philadelphia**

Sales Offices:

Hale & Kilburn Corp., 30 Church St., New York
Hale & Kilburn Corp., McCormick Bldg., Chicago
Natl. Safety Car. & Equip. Co., Theresa and Clark Aves., St. Louis
E. A. Thornwell, Candler Bldg., Atlanta
Eccles & Smith Company, 71 First Street, San Francisco
Eccles & Smith Company, 447 E. 3rd St., Los Angeles
H. M. Euler, 46 Front Street, Portland, Oregon
T. C. Coleman & Son, Starks Bldg., Louisville
W. L. Jefferies, Jr., Mutual Bldg., Richmond
W. D. Jenkins, Praetorian Bldg., Dallas, Texas
W. D. Jenkins, Carter Bldg., Houston, Texas

FREMONT SEDAN COACH

Model 700

21 Passenger

$1650.00

Feature This Superb Bus Body

Sight-seeing bus companies, touring bus lines and many other concerns are live prospects for the luxurious Fremont Sedan Coach Model 700. Rear door gives access to rear seats—which can be partitioned off for smoking compartment. Finest of materials, workmanship and appointments throughout. Built in 13, 17 and 21 passenger capacities. Feature this superb bus body on *your* chassis—for handsome profits. The Fremont Dealer Franchise enables you to get the cream of the bus business in your territory with the complete line of Fremont Bus Bodies. For details—*write now*.

Fremont Metal Body Company, Fremont, Ohio

THIS SYMBOL IN ANY ADVERTISEMENT MEANS: SEE "CHILTON AUTOMOBILE DIRECTORY" FOR COMPLETE BUYING INFORMATION

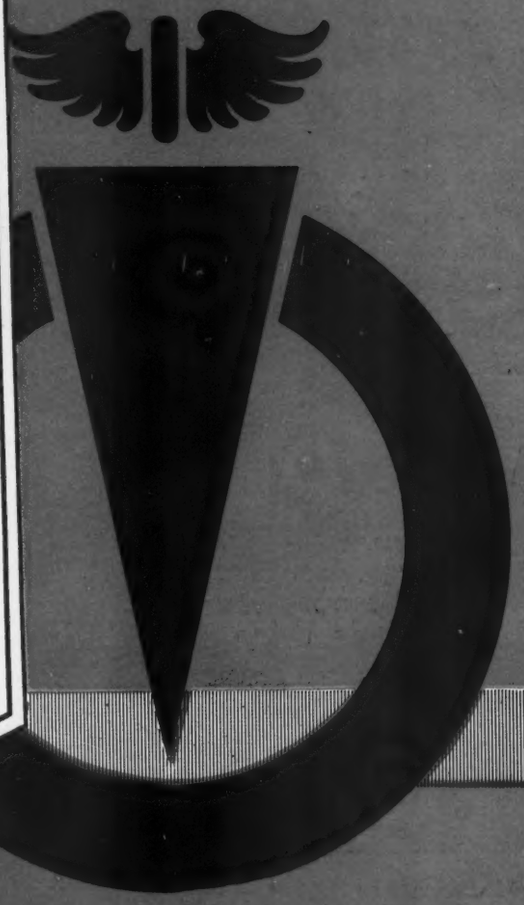
"and besides Raybestos"
YOU BUY
FOSTER
DIXON'S Automobile Lubricants
FOSTORIA FENDERS
FOSTORIA FENDERS
GUARANTEED
Bearings Co. of America
ZENITH CARBURETOR
The Chilton Symbol
directs buyers to
these catalogues in the
Chilton Automobile Directory
HERE are a group of concerns that are using the CHILTON Symbol Plan of Automotive Trade Advertising.
The Zenith Carburetor Company, Joseph Dixon Crucible Co., The Raybestos Company, Foster-Johnson Reamer Co., Wood Hydraulic Hoist & Body Co., The Fostoria Pressed Steel Company, and The Bearings Company of America, are only a few of the many prominent concerns that recognize the value of the CHILTON Symbol Plan.
Details about what the Plan is and how it works are on the next page

The Short-Cut to Sales

THE CHILTON Symbol Plan has been eagerly adopted by many progressive advertisers because it furnishes the only known method of economically supplying readers of automotive trade advertising with specific buying details, without delay or inconvenience. It is a short-cut to sales because it saves buyers' time and makes it easy to purchase any product so advertised.

Users of the CHILTON Symbol Plan place condensed catalogs of their lines in the Standard Reference Book of the Industry—the CHILTON AUTOMOBILE DIRECTORY. They then display the well-known CHILTON Symbol in all their other advertising to direct prospective buyers to these buying catalogs. As practically all worth-while buyers in the business receive the CHILTON AUTOMOBILE DIRECTORY annually they can quickly refer to these catalogs and buy from them. By placing this detailed data in the hands of buyers and by directing them to it by means of the CHILTON Symbol, advertisers greatly simplify the purchase of their products.

If *you* desire to increase *your* sales and to make *your* advertising more efficient, use the CHILTON Symbol Plan. Ask us for further particulars.



CHILTON AUTOMOBILE DIRECTORY

Market and 49th Streets

PHILADELPHIA

EISEMANN

DEPENDABILITY

THE fundamental point from the good-will aspect by which you should determine the selection of ignition equipment is:

Which is the most *reliable* magneto?

The Eisemann Magneto Corporation could fill many pages describing the elements of design, the standards of materials, the precise methods of manufacture and inspection which have placed Eisemann High Tension Magnetos in this enviable position.

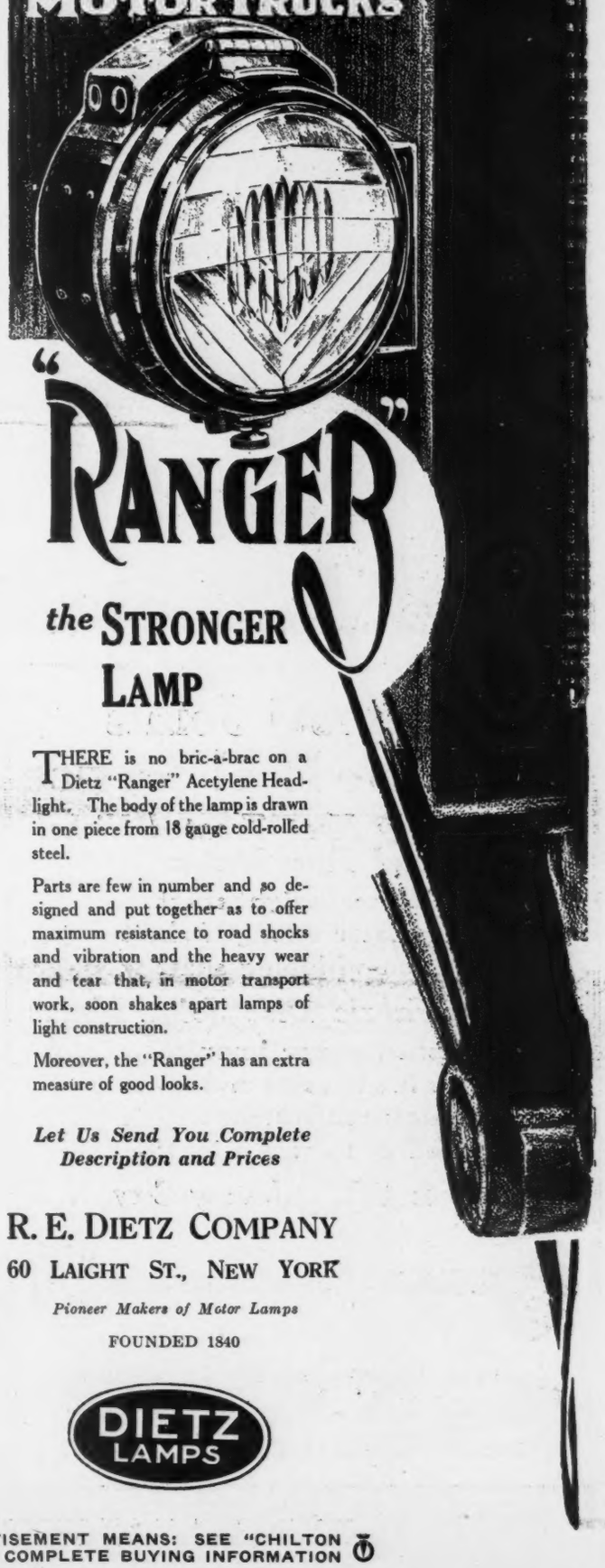
But more effective than anything we ourselves could say is this one indisputable fact:

Eisemann Magnetos have been selected and installed as standard equipment by more manufacturers of high grade motor trucks than any other ignition device in the world.

The inclusion of the name "Eisemann" in your specifications is a distinct sales advantage.

EISEMANN MAGNETO CORPORATION
BROOKLYN, N.Y.
DETROIT CHICAGO

DIETZ NEW ACETYLENE HEADLIGHT for MOTOR TRUCKS



"RANGER"

the STRONGER LAMP

THERE is no bric-a-brac on a Dietz "Ranger" Acetylene Headlight. The body of the lamp is drawn in one piece from 18 gauge cold-rolled steel.

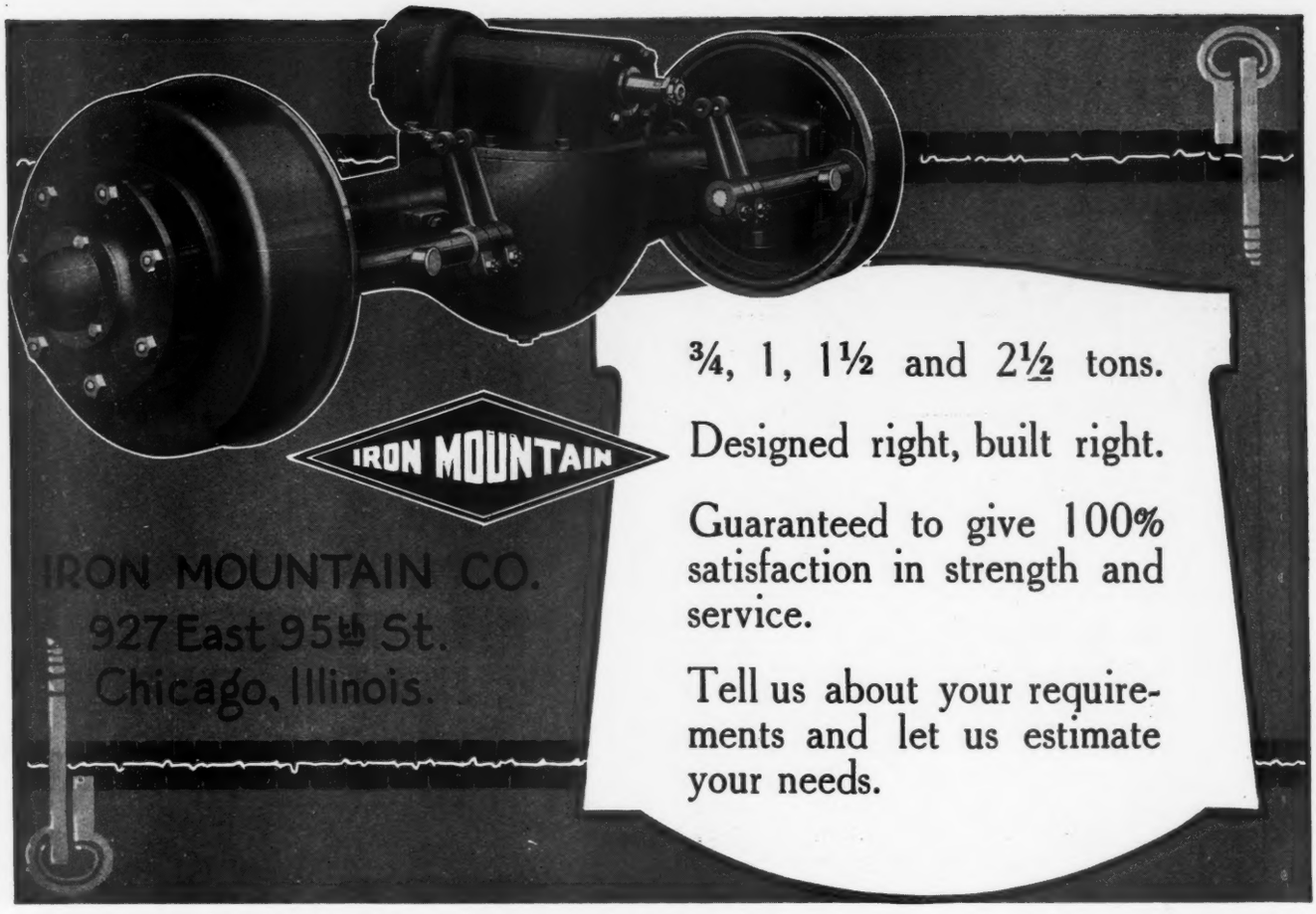
Parts are few in number and so designed and put together as to offer maximum resistance to road shocks and vibration and the heavy wear and tear that, in motor transport work, soon shakes apart lamps of light construction.

Moreover, the "Ranger" has an extra measure of good looks.

Let Us Send You Complete Description and Prices

R. E. DIETZ COMPANY
60 LAIGHT ST., NEW YORK
Pioneer Makers of Motor Lamps
FOUNDED 1840

DIETZ LAMPS


IRON MOUNTAIN
IRON MOUNTAIN CO.
927 East 95th St.
Chicago, Illinois.
¾, 1, 1½ and 2½ tons.
Designed right, built right.
Guaranteed to give 100% satisfaction in strength and service.
Tell us about your requirements and let us estimate your needs.

Universal Joints That Give Real Service

Electrically Heat Treated Nickel Steel Tube Makes

A lighter weight shaft
A greater strength shaft
A non-whipping shaft

Flexible Fabric Disc Joint Means

Cushioned power impulses
Longer life to gears and bearings
Minimum replacement costs
No need of service attention

SNEAD & CO. Jersey City, N. J.

SNEAD CUSHION DRIVE

The RED EYE *Does It!*

Red Eye Spring construction makes springs strong at what is ordinarily the weakest point—the union of the eye and top leaf.

The eye is forged at the same time the top leaf is heated and rolled, thereby eliminating numerous consequent heatings which often change and impair the micro structure of the steel.

You may be *paying* for quality springs—be sure you *get* all the *strength* you pay for by specifying Red Eye Saving Springs—the spring with the visible selling asset.

The Saving Spring Co.
Ashland, Mass.

"Shuler Builds Front Axles—*Exclusively*"

"The Shuler people have been far-sighted enough to realize that the front axle is a vitally important unit of construction. They have concentrated all their energy on perfecting this one thing—front axle design and workmanship.

"You can see the result in our own tests. The Shuler front axle has been demonstrated as superior in every way to the other axles which we have examined. I am confident that it will show that same superiority in service for our customers."

Manufacturers who have given the front axle the careful consideration that its importance demands are selecting SHULER Front Axles as

Standard Equipment on Motor Buses, Motor Trucks Trailers and Tractors

Our engineers are at your service to develop the greatest possible efficiency in your product through the use of the Shuler Front Axle that best meets your particular requirements.

We will be glad to furnish complete information to any manufacturer on request.

SHULER AXLE COMPANY
INCORPORATED
3003 Jones Street Louisville, Kentucky, U. S. A.

Shuler Front Axles

FULLER *Transmissions*

The Most Widely Used Transmission Today

The number of Fuller equipt cars has grown until today Fuller Transmissions are the most widely used in the industry.

Each passing year has increased the prestige and proven the superiority of Fuller strength, durability and design.

And alert dealers, realizing this fact, tell their customers of the installation, knowing that to be Fuller equipt means to have an additional sales advantage.

The mechanical efficiency and well-won worth of Fuller Transmissions can help you sell more trucks. Let us prove it. Our engineering department is at your service.

They Help You Sell More Trucks

Fuller & Sons Mfg. Co.
Kalamazoo, Mich.
New York
Detroit
San Francisco
London

DROP FORGINGS Are Stronger and More Dependable Than CASTINGS

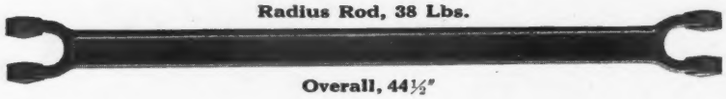
DROP FORGINGS

Capacity 1,800 Tons Per Month **Open Hearth or Alloy Steel**

TYPICAL TRUCK FORGINGS

ANYTHING THAT CAN BE DROP FORGED UP TO 300 LBS.

Radius Rod, 38 Lbs.



Overall, 44½"

Torque Arm, 37 Lbs.

Overall, 32½"

BACKED BY FORTY YEARS' EXPERIENCE

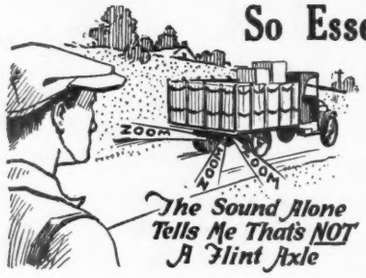
Heat Treating and Complete Laboratory Equipment

UNION SWITCH & SIGNAL COMPANY

Pittsburgh District, SWISSVALE, PA.

Proper Tooth Contact in the Rear—

So Essential in Speed Buses — Is Provided in Flint Axles



Here is a new one-ton commercial or bus axle which is not only strong as a whole, but strong *in* its *individual features*—and strong in the fact that it safeguards *your* interests at every point which ordinary axles overlook.

How often, for example, have you wished for a *light* bus axle, or one which could be used on one-ton trucks, which had easy and accessible gear adjustment on the pinion. Flint Axles provide the differential with gear adjustment at the sides and on the pinion—absolutely providing proper tooth contact *and quiet gears.*

Just *one* of the valuable Flint Features! There are ten others. *Your* specifications should include them all. Write and find out about them.

General Specifications: 1 ton, 4000 lbs. on spring pad, 1450 lb. motor tongue, 35 x 5 tire, 56" track, 1⅝" spoke; 4.9 to 1 or 5.5 to 1 ratio. 36"-39" spring centers. Weight 325 lbs., less wheels.

Flint Motor Axle Company **Flint, Michigan**

Flint FULL FLOATING REAR AXLES

FOR SPEEDY ONE-TON COMMERCIAL VEHICLES

8 Speeds for the Packard

PACKARD TRUCK DEALERS: Double the speed of your customers' Packard Trucks with an installation of the Ahlberg Dual Transmission—and make some real profits.

Just ask a number of your good customers to let you place this better transmission on trial, on one of their Packards.

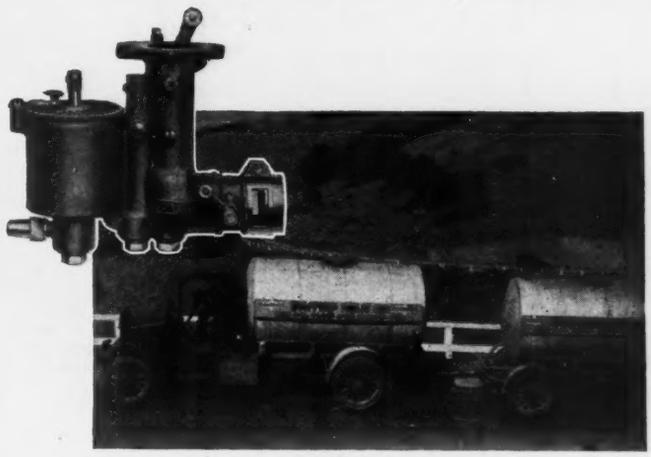
When they see how easily this powerful transmission sends their loaded-to-capacity trucks up heretofore impossible-to-make grades—they'll quickly ask you to Ahlberg-equip all their trucks. Price only $259.37 for a Packard E. C., E. D., or E. F. Model.

This truck-saving transmission reduces the standard gear ratio by a clear 62½%. That tells the impressive money-making story of the Ahlberg. Dealers who handle White, Mack, Graham Bros., and Garford Trucks can also make fine profits with this superior transmission.

K. E. AHLBERG CO.
120 W. 22nd St. Los Angeles, Cal.

AHLBERG
DUAL TRANSMISSION
for Packard—Mack—White
Graham Bros.—Garford Trucks

ZENITH



Making San Francisco's Milk Supply Certain

The United Milk Company's heavily loaded trucks, pulling one and two trailers of the same capacity, make the round trip from Solidad to to San Francisco—268 miles—every twenty-four hours.

This practically continuous service—maintained by relays of drivers—brought new and unexpected problems; among them, rapid wear of their carburetors due to the constant vibration.

The Zenith, primarily because there are no valves, springs, toggles, or other fragile parts to wear or lose their adjustment, solved their problem fully and permanently.

This is but one of literally scores of cases where Zenith has filled the needs that no other carburetor could meet; but one of hundreds of installations where the necessity of the utmost in dependability, economy, or performance has dictated Zenith Carburetors.

Those qualities that make Zenith pre-eminent in exceptionally difficult service, also make it best in ordinary service.

All Zeniths are built on the same time-proven principle; and there is a model for every automotive engine.

ZENITH CARBURETOR CO.
New York DETROIT Chicago

THIS SYMBOL IN ANY ADVERTISEMENT MEANS: SEE "CHILTON AUTOMOBILE DIRECTORY" FOR COMPLETE BUYING INFORMATION

"Wheeler-Made"

Radiation Insurance

Dealers in increasing numbers are beginning to realize that "Wheeler-Made" Radiators on their trucks have a definite radiation-insurance value.

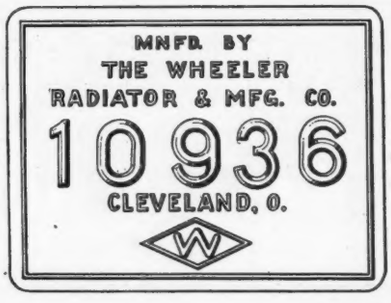
Users of trucks equipt with Wheeler Radiators do not complain of leaking radiators, of over-heated engines and burnt-out bearings. Wheeler Radiators provide adequate radiation and enable the cooling system as a whole to function properly.

That is why leading truck makers and their dealers make a point of explaining the radiation-insurance value of their Wheeler-equipt chassis to customers.

The Wheeler Radiator & Mfg. Co.
Cleveland, Ohio

WHEELER RADIATORS

This Mark on the Radiator

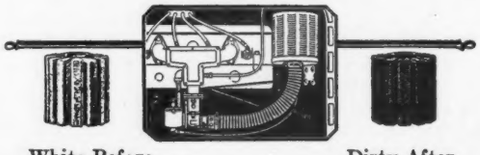


Identifies Wheeler Quality

DURSTON TRANSMISSIONS

For passenger cars and trucks up to one-ton capacity. Investigate their adaptability to your requirements.

DURSTON GEAR CORPORATION
29 Maltbie Street
SYRACUSE, N. Y.



White Before Service — Dirty After Service

STAYNEW FILTER

ROAD DUST

The Greatest Enemy to Motors

It is a well-known fact that road dust entering thru the carburetor air intake to the motor makes the oil gritty, thereby causing excessive wear on the pistons, piston rings, cylinder walls and bearings, making it noisy and inefficient, which results in direct loss of power, increased fuel consumption and, in most cases, reboring of cylinders and fitting of new pistons and piston rings is necessary.

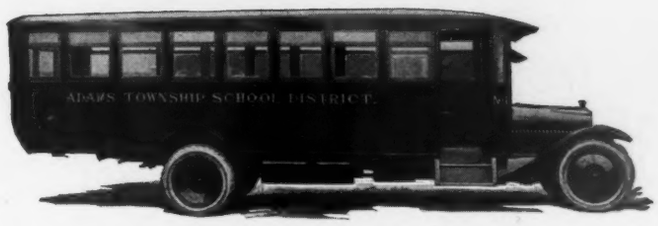
Eliminate this trouble and expense by installing a Staynew Filter, which will save the cost of installation many times.

Complete sizes and fittings for all makes of cars and trucks; simple to install and requires no attention.

Exclusive territory to live dealers and distributors. Write for details.

STAYNEW FILTER CORP.
Rochester, N. Y.

BUILDERS OF BETTER BUS BODIES



Type DX bus body—32 passenger—Inside width, 78"—Inside height, 71"—32" cross-seats, allowing 14" aisle in the center. Rear seat is full width with longitudinal seats over wheel-housings. DEALERS WANTED.

Bus Bodies, any size, any type, for any chassis. Our Bus Bodies represent REAL QUALITY at RIGHT PRICES and mean SATISFACTION to dealers and users.

GROVE CITY BODY & MFG. CO.
Established 1867
GROVE CITY, PA.

SCHACHT TEN-SPEED TRUCKS

Dealers who are interested in selling the most advanced type of truck transportation will find the SCHACHT TEN-SPEED TRUCK a real profit-maker.

A size for every need—1½ to 7 tons. Write for full particulars.

The G. A. Schacht Motor Truck Co.
8TH AND EVANS STS. CINCINNATI, OHIO

COLUMBIAN
Partition Mounted
3 Point Supported
TRUCK TANKS

Exclusive and Extraordinary Features—Partition Mounted, Lowest Mounting, Less Deadweight. Three-Point Supported, No Twisting Strains, Less Upkeep Expense. Jointless Pipe Lines with Funnel Outlets. Welded-on Bucket Boxes. Removable and Adjustable Side Carrying Racks, Tank, Mounting, Pipe Lines and Bucket Box Welded into a Monometallic Unit. Correct Distribution of Load on Rear Axle. The Triumphant Climax to Truck Tank Construction.

COLUMBIAN
Monometallic
DUMP BEDS

Longitudinal sills formed from side and bottom members. All members electrically welded into monometallic unit. No rivets in entire assembly. Stronger, more rigid, longer service. Five models. Tail gate hinged top and bottom—double acting.

COLUMBIAN
Lightning Hoist

A simple device built upon sound engineering principles, giving power that enables a man to dump a five-ton load with ease and without power expense. Narrow and compact in construction. Mounts in 11 inch space.

THE BIG 3
of the
Truck Equipment Field

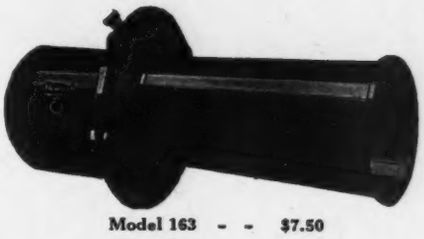
A letter, a telegram or a ring on the telephone will bring full data and way down prices on any one or all three.

COLUMBIAN STEEL TANK CO.
Tanks for the World **Established in 1894**
1405-1625 West 12th St. **Kansas City, Mo.**

For Trucks

Model 131-Y, $25.00
Model 76-B, Mileage Recorder only, $18.00

Model 114 - $5.00
Model 151, Slanting Plunger - $3.50



Model 163 - - $7.50
Model 186 - - $10.00

STEWART-WARNER SPEEDOMETER CORP.
CHICAGO, U. S. A.

1867 1923

A 36x6 Dual S. A. E. METAL FELLOE TRUCK WHEEL ready for hub and tires.

Weight 160 Lbs.

How does this compare with the weight of wheels you are now using as standard on your trucks?

Further information gladly furnished upon request.

Hoopes, Bro. & Darlington, Inc.
WEST CHESTER, PA.

Removing Spider from Autocar Transmission

From the Center-OUT

Here's the way to pull apart any tough job—gears, cams, collars, flywheels or truck wheels.

The hardened steel point at the end of the Crane Puller screw engages the center hole of the shaft or the work but does no damage.

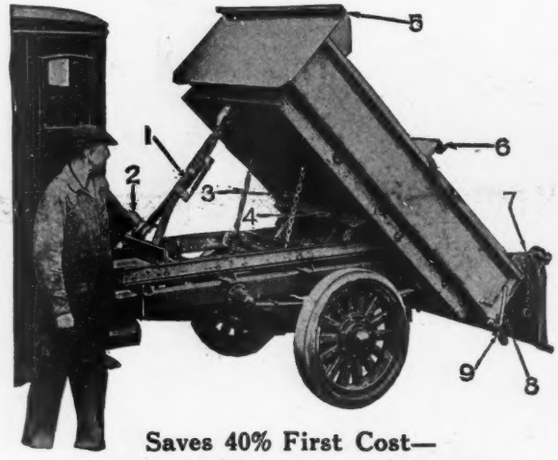
Tremendous leverage is exerted by the screw and applied evenly by the adjustable arms to pull the piece apart. No possibility of distortion or bending—just a straight line pull till the piece comes *out*.

You need this tool—your jobber has it—*write*

CRANE PULLER COMPANY
54 Lake Street, Arlington 74, Mass.

CRANE PULLER
The Original Pulling Tool

LEE DUMP BODY
Dumps Without Power

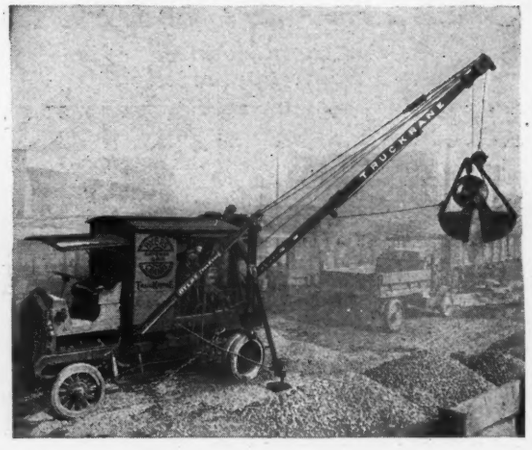


Saves 40% First Cost—
Cheaper to Maintain and Operate

Lee Bodies use *no* hoist. They eliminate the needlessly complex construction which makes conventional dump bodies expensive in first cost and less dependable in service.

They save weight and expense of extra parts. And they increase daily tonnage. So simple, so practical and withal so inexpensive that they sell much easier. Of course there are mechanical reasons. Write for full information.

LEE TRAILER & BODY COMPANY
2343 South La Salle Street Chicago, Ill., U. S. A.



BYERS AUTO-CRANE AND REVOLVING TYPES CRANES

Always New Uses for Your Truckrane!

The longer you operate it, the more profitable things you find for your Truckrane to do. Unloading and rehandling coal, coke, ashes, slag, sand, crushed stone, etc., is an important Truckrane job—the Truckrane will set new high records in speed and new low records in yardage costs.

Buy the crane and bucket from us—mount it on any chassis, either second-hand or new, measuring at least nine feet six inches from back of driver's seat to center of rear axle.

We'll gladly send interesting pamphlet.

The Byers Machine Co., 155 Sycamore St. Ravenna, Ohio

Sales Agencies Everywhere

TrucKranE

THIS SYMBOL IN ANY ADVERTISEMENT MEANS: SEE "CHILTON AUTOMOBILE DIRECTORY" FOR COMPLETE BUYING INFORMATION

The SELDEN LINE comprises a series of light and heavy-duty units of transportation—each powerfully constructed to give highly efficient and economical service in the particular commercial pursuit for which it is intended.

WRITE for Complete Information

SELDEN TRUCK CORPORATION
ROCHESTER, N. Y., U. S. A.

Selden Motor Trucks

BUSH
RADIATORS

BUILT TO ENDURE
FOR
TRUCKS - BUSES

BUSH MANUFACTURING CO.
HARTFORD, CONN.

Rely on York
Sheet Metal Parts

In closing the sale of your truck, the Sheet Metal Parts play a surprisingly large part—when they are York-made.

Not only are York Sheet Metal Parts rugged in construction and reasonably priced—they are uncommonly handsome in appearance. And that certainly helps make truck sales.

Do you need Fenders, Tanks, Hoods, Radiator Shields, Tool Boxes or Special Stampings? Ask us to quote you—this doesn't obligate you in the least.

York Corrugating Co.
York, Pa.

WATCH
This Space
for
a New Type
ALL-WEATHER
CAB

A Salable and Profitable Cab to Recommend

Cabs for Motor Trucks

SHEET STEEL PRODUCTS COMPANY
MICHIGAN CITY, INDIANA

THIS SYMBOL IN ANY ADVERTISEMENT MEANS: SEE "CHILTON AUTOMOBILE DIRECTORY" FOR COMPLETE BUYING INFORMATION

Dumbstruck by a truck

Every owner of a new VIM has been amazed at its performance in speed, hill-climbing and economy of operation. No other truck of similar capacity can equal it. This is a truth every truck user should *know*. Put it up to us to prove it.

Vim Motor Truck Co.
PHILADELPHIA, PA.

The NEW **VIM**
1/2 - 3/4 TON TRUCK

A *Selling* Demonstration of the
ARCHER
STEEL DUMP BODY AND HAND HOIST

Show your customer how, with this easy-to-operate outfit, one man readily dumps the entire load. *Such a demonstration will sell the buyer,* because he will see with his own eyes the Archer's superior time and labor-saving features.

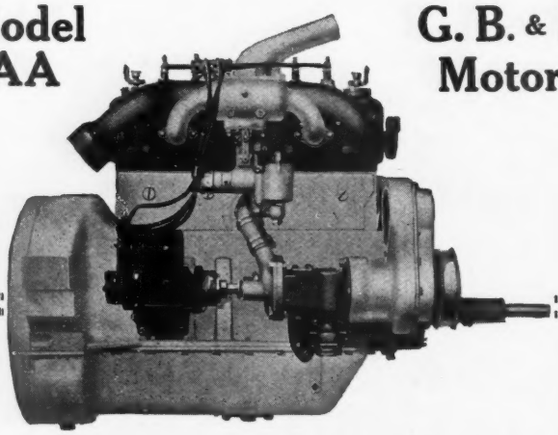
For road builders, coal concerns, grain merchants—for every business that needs efficient dumping equipment.

Write for special dealer proposition.

Our Standard Dump Outfits Fit All Makes of Trucks From 1 Ton to 5 Ton Capacity

ARCHER IRON WORKS
2450 West 34th Place, Chicago

Model AA G. B. & S. Motor



Priced Low for Quick Sale

This Model AA G. B. & S. replaces Continental Motor N-3¾" x 5"—a size very much in demand.

Without any change of fitting dimensions, truck manufacturers and dealers can install this famous quality G. B. & S. engine on any truck that accommodates the Continental model.

Has aluminum base, high class workmanship throughout. Built to withstand severest truck service.

A number of Model S G. B. & S. Motors also available at exceptionally reasonable prices.

Wire Your Requirements

Golden, Belknap & Swartz Co., Detroit, Mich.

G. B. & S. MOTORS

You Cannot Buy It!

You cannot buy or rent the valuable CHILTON TRADE LIST but it will be loaned to you if you are an annual advertiser in the CHILTON AUTOMOBILE DIRECTORY.

This is the most complete and accurate list of the retail automobile trade obtainable. It gives the names, addresses and business classifications of dealers, garagemen, supply houses, repairmen, etc.

The CHILTON TRADE LIST Service also includes a Bulletin Service of changes in the Trade List, Jobbers' Roster of the names of members of the A.E.A.; Roster of Automobiles Accessory Supply Houses; and a list of Officers and Managers of automobile truck and tractor concerns. Executives and Sales Managers find CHILTON TRADE LIST Service indispensable.

CHILTON AUTOMOBILE DIRECTORY
Chestnut and 56th Sts., Philadelphia

CHILTON TRADE LIST

THIS SYMBOL IN ANY ADVERTISEMENT MEANS: SEE "CHILTON AUTOMOBILE DIRECTORY" FOR COMPLETE BUYING INFORMATION

"BETTER BUILT" BUS BODIES"

FIRST-QUALITY materials and workmanship are built into our sturdy, distinctive Bus Bodies. Quantity production of standardized units enables us to offer them at extremely moderate prices. You dealers will find these high-class, low-priced bodies powerful aids in closing bus sales.

Complete Catalog and Prices Gladly Sent on Request

BUS BODY CORPORATION
Exclusive Bus Body Builders
Evansville Indiana, U. S. A.

THREE B
BBB
BLOOD BROTHERS MODEL B
UNIVERSAL JOINTS

In the Front Ranks of Proved Units

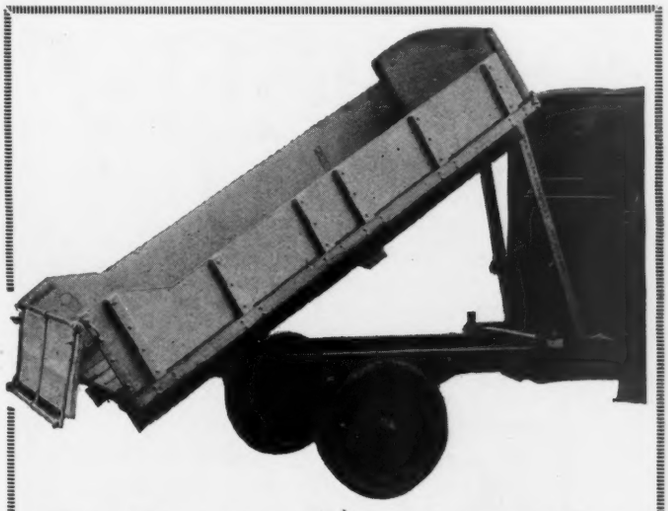
Only proved units interest discriminating automotive engineers. Hence: the immediate adoption of Model B Universal Joints.

Oil is force fed to Oversize Bearings through a single opening by centrifugal action, insuring positive, convenient lubrication and dependable performance.

Bushings completely supported.

Details on Request

Blood-Bros. Machine Co.
PIONEER BUILDERS OF UNIVERSAL JOINTS
ALLEGAN MICHIGAN
F. SOMERS PETERSON CO.
San Francisco, California-Western Representative



ROCK TYPE H HOIST

A highly efficient, well designed and carefully built hand hoist for dump bodies up to 3½ ton capacity.

Cut gears are used on the winch.

Can be mounted on any width of chassis without change.

Occupies but 9" of space.

No holes required in frame for mounting hoist.

Dumping angle from 35° to 45°.

Price, With Body Hinge, $85.00

ROCK MANUFACTURING CO., Waterloo, N. Y.

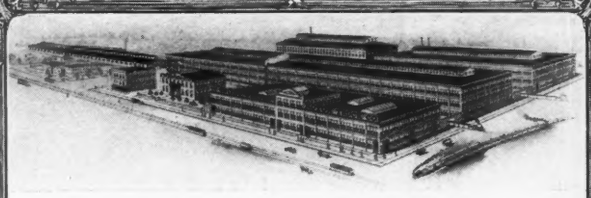
Rowe THE PIONEER TRUCKS

Complete Line Worm-Driven Trucks
¾ to 6 Ton Capacity

ROWE COMMERCIAL BODIES
BODIES OF UNUSUAL CONSTRUCTION

Valuable Territory Open to Dealers
Write for Catalogue

ROWE MOTOR MANUFACTURING CO.
LANCASTER, PA.



The U. S. Dealer in Indianapolis Says:

"The satisfactory performance of U. S. Trucks in the hands of the users convinced us that U. S. was a good company to represent.

"There is easily 20% more value in U. S. Trucks than in other trucks selling for the same price.

"We have sold several of the leads handed to us by the factory this year, and have seen the benefit of the U. S. system of factory sales co-operation, which means everything to the dealer."

PROFIT BY INVESTIGATING THE U. S. SALES FRANCHISE

A U. S. Truck for Every Hauling Need

Capacity	*Price, 1922*	*Price, 1923*	*Reduction*	*Model*
1¼ Ton	$1875	$1575	$300	U
1½ Ton	2175	1775	400	N
1½–2 Ton	2550	2175	375	NW23
2½–3 Ton	3300	2675	625	R
3½–4 Ton	4075	3425	650	S
4–5 Ton	4350	3725	625	S-Special
5–7 Ton	4975	4475	500	T

F. O. B. Factory, Plus War Tax

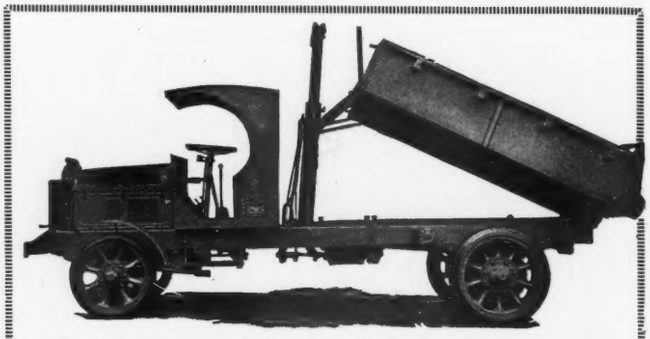
Write for Your Copy of Our Folder, "How to Start a Profitable and Permanent Truck Business"

THE UNITED STATES MOTOR TRUCK CO., INC.

Established 1909

Cincinnati, Ohio **Factory: Covington, Ky.**

United States MOTOR "GOOD AS THE NAME" TRUCK



STEWART'S STEEL DUMP BODIES

Built to withstand hard usage. Bodies made to give your truck additional service.

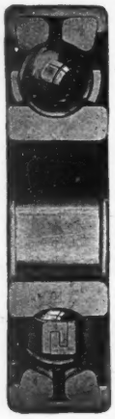
Standard and Special Steel Bodies. Let us quote on your requirements.

THE STEWART IRON WORKS CO.

COVINGTON, KENTUCKY

Manufacturers of

STEEL BODIES CABS BUMPERS DASHES RADIATOR GUARDS



Three Area Contact

This famous design, which enables the bearing to sustain a 50% thrust load in either direction, is found exclusively in

Schatz
"UNIVERSAL"
Registered *Annular* U.S.Pat.Off.
BALL BEARING

Greater Precision Less Friction Longer Life

The Federal Bearings Co., Inc.

Poughkeepsie New York

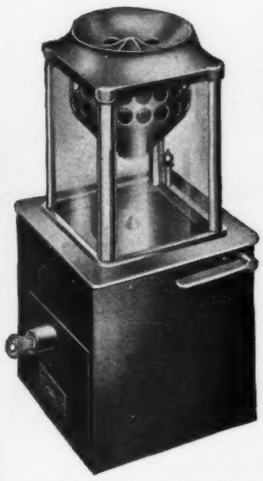
Invaluable!

EVERY Manufacturer selling to the retail trade should have the CHILTON TRADE LIST. It gives the names, addresses and business classifications of all dealers, garagemen, service stations, supply houses and repairmen in the United States and Canada.

This list is *loaned* only to annual advertisers in the CHILTON AUTOMOBILE DIRECTORY and cannot be obtained in any other way. For further information address:

Chilton Automobile Directory
Chestnut and 56th Sts.
Philadelphia

The Chilton Trade List



A FARE BOX for Motor Buses

Simple
Sturdy
Compact
Safe

A Splendid Opportunity for Dealers

Model No. 101-A Fare Box

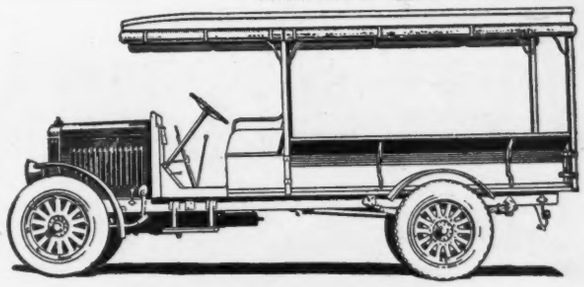
Specifications

Size—12½" x 6" x 6". *Weight*—10 pounds. *Cash Drawer*—5½" x 4¾" x 3½". Yale pin tumbler lock. *Glass*—¼" plate glass, securely packed. *Finish*—White nickel and baked enamel. *Telltale*—Gravity type. *Installation*—Fare Box is furnished with hanger for one-inch pipe or with bracket for attaching to flat surface. In ordering specify which is desired, also whether box must take both tickets and coins.

Price: Model No. 101-A, $25.00, F. O. B. Dayton, Ohio

We also manufacture indicating and recording fare registers for all kinds of transportation service.

OHMER FARE REGISTER CO.
DAYTON, OHIO, U. S. A.



KISSEL'S TON EXPRESS

THE Ton Express—built for the retailer, merchant, wholesaler, farmer—is a regular One-Ton Kissel Truck in which strength and durability are combined to make it the best value on the market, irrespective of price.

$1585
Chassis—Standard Equipped

$1985
For chassis and body completely equipped with worm-drive rear axle, electric lighting and starter, cord tires, express body and top—completely painted. Prices F.O.B. Hartford, Wisconsin.

KISSEL Motor Trucks 5 Sizes

The complete line of Kissel Trucks creates a sales opportunity that makes the Kissel Franchise in your territory doubly valuable. Also Special Road Builders' Truck, Hoppers, Measuring Boxes, Turntable, etc. Send for franchise details.

The Kissel Motor Car Co.
Hartford Wisconsin
Originators of the ALL-YEAR Cab for Trucks

Joint Dealers' Agencies

at desirable points are open for

DETROIT TRAILERS

Reversible, Non-Reversible, Semi-Pole, Dropped Frame, Industrial and Passenger Car—

Mansfield Steel Corporation

Line of Gravity Dump Bodies, Flat-Bottom Bodies with Power or Hand Hoist; Trailer or Towing Attachments for Trucks; Radiator Guards and Front Bumpers (listed as standard by Underwriters' Laboratories) and other desirable and good selling devices. Address either:

Detroit Trailer Company
or
Mansfield Steel Corporation
Both Located at
954 East Milwaukee Ave., DETROIT, MICH.
Our mammoth shops are equipped to handle nearly everything in the transportation line

COUNTERBALANCED PARK CRANKSHAFTS

Patented July 10, 1917

We have shipped 141,287 Counterbalanced Crankshafts up to March 30, 1923.

THE PARK DROP FORGE COMPANY
Cleveland, Ohio

Perfect Adjustment to Compensate for Wear

Wohlrab Steering Gear

The WOHLRAB is the only Steering Gear upon which perfect adjustment can be made to compensate for wear.

Make sales easier for your dealers by equipping your truck with the steering gear that does its full share to reduce operating expense.

The Wohlrab Gear Company
Racine, Wisconsin

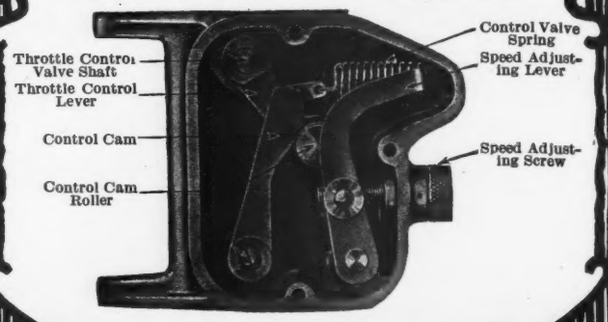
65,000 in Actual Use Prove Results

TODAY more than 65,000 Handy Governors are in use and their number is constantly increasing.

For Handy Governors are not only the simplest and most efficient but also the only governor that requires absolutely no attention—not even oiling—after installation.

Make sure that the governor for your truck is trouble proof by specifying that it be a Handy.

HANDY GOVERNOR CORPORATION
3021 Wabash Ave. **Detroit, Mich.**



HANDY GOVERNOR

No Danger of Slipping or Dropping From REES Jacks

Model No. 5 A
For ½ to 1 ton Speed Wagons and Light Trucks 2½ ton capacity.

Your customers have had experience with ordinary jacks when the load was partly raised, failing at some point and dropping. Now they want a better jack.

Only 4 Working Parts
Rees Jacks have no ratchets—no delicate springs. Only 4 working parts and they **can't** get out of order.

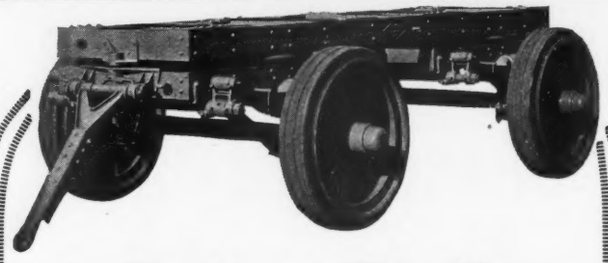
The Worm Drive in Most Efficient Form
Double Worm Drive of Rees Jacks evenly balances all forces, lifts loads of all kinds safely and quickly with small effort and eliminates danger of slipping and dropping.

No. 3 A
6 tons

Sell the Jack That's Durable

Cash in on the Rees Jack features which make them so dependable and easy to operate. Show customers that besides buying a tool that will be good years, the performance of Rees Jacks make them preferable **now.** Write today for information and discounts and be prepared for the best selling line of jacks on the market.

Rees Manufacturing Company
Pittsburgh, Pa.



A Better Trailer for Better Profits

The platform of this Fruehauf Four Wheel Trailer is carried on two reversible gears or trucks. Each truck carries its load on dead square axles—the simplest, most efficient construction ever designed for heavy haulage purposes.

This exclusive feature is one of many that enable you to sell Fruehauf Trailers for better than ordinary profits.

Get acquainted with the complete line of Fruehauf Trailers—and our extremely liberal distributor and dealer proposition. Write.

Fruehauf Trailer Company
10921 Harper Avenue **Detroit, Mich.**

FRUEHAUF TRAILERS

The Bear Tractor

Write today regarding unassigned territory, and ask for catalog and distributor's and dealer's proposition

BEAR TRACTORS, INC., 5303 PARK PLACE, NEW YORK CITY

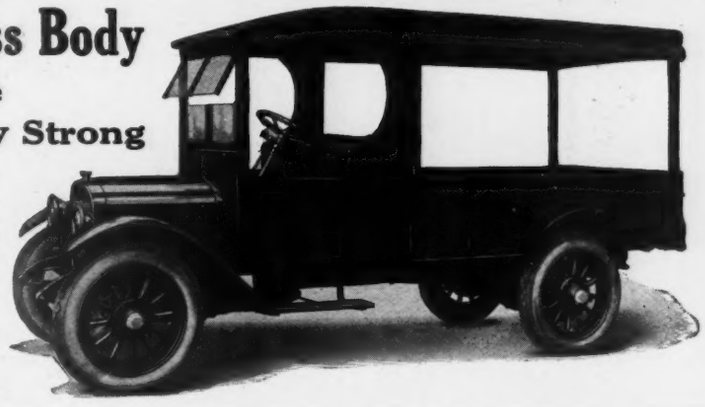
The Tractor that Delivers its Power to the Drawbar

A New Ribbed Panel Express Body

Added to Babcock Line

Very Roomy and Exceptionally Strong

SPECIFICATIONS: Loading space, 96" x 56½" x 64" high. Width between Wheelhouses, 45"; Side Panels and Tail Gate, 19½" high, steel lined; Body heavily ironed; Metakloth Curtains side and rear, also back of Driver's Seat; Driver's Storm Curtains with Pyralin Lights; Fore Doors, Windshield, Rear Fenders and Splashers built in Body; Spring cushion Seat and full width Back; Roof, 12 oz. Oil Duck, leaded and painted.



H. H. BABCOCK COMPANY

Established 1845

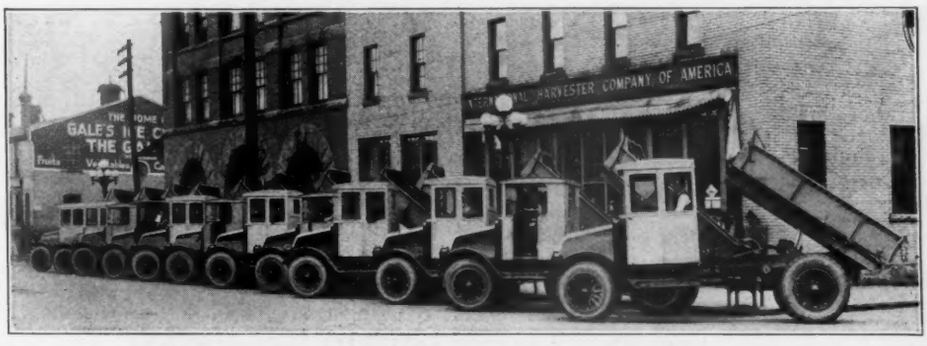
WATERTOWN NEW YORK

WYMAN-GORDON

The Crankshaft Makers

Worcester Division
WORCESTER, MASS.

Ingalls-Shepard Division
HARVEY, ILL.



FLEETS ARE EQUIPPED WITH HIGHLAND CABS

The Highland Body Mfg. Co.

403 Township Ave.
Cincinnati
Ohio

THIS SYMBOL IN ANY ADVERTISEMENT MEANS: SEE "CHILTON AUTOMOBILE DIRECTORY" FOR COMPLETE BUYING INFORMATION

Peerless Hoist, Showing Body Hitch
Worm and Gear, Machine Cut

The Only Logical Choice for Dealers

There is every reason why the Peerless is the logical hoist for you to sell. The discount is so liberal that your time is well paid for and a handsome profit is earned on every sale. The price appeals to your customers, as it is from one-third to one-half lower than the cost of other hoists.

But profit and price would make little appeal if you did not conscientiously believe that the

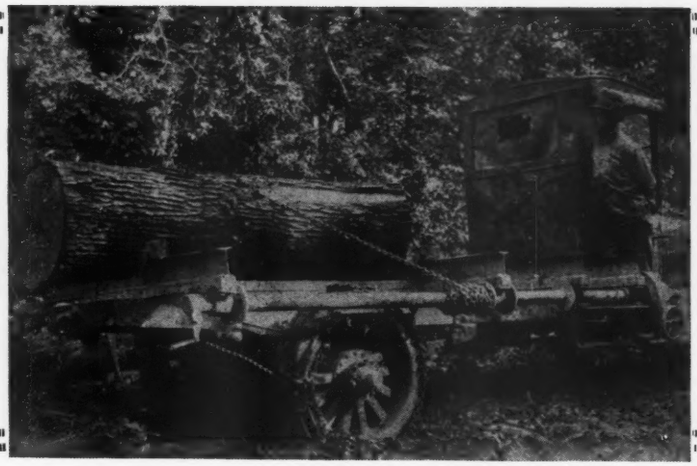
Peerless Hand Hoist

was superior in mechanical perfection and operation to any other lifting apparatus made. Rest content! It is *the only* efficient hoist that can be attached to either steel or wood bodies. It is *the only* efficient hand hoist that sells at a moderate price. These are pretty strong reasons why you should consider its sales possibilities. An operator can hoist from one to four tons in from one to four minutes. What more could be required on speed?

You are getting calls for hoists and are often undecided as to *which* hoist to recommend. We'll tell you *why* the Peerless fills the bill every time. Will you let us?

Aisteel Bodies Guaranteed to Take Care of 100% Overload Under Rough Usage

The Auglaize Hoist and Body Company
New Bremen, Ohio



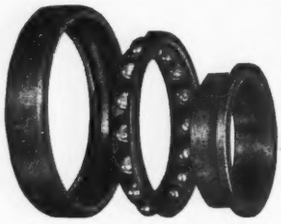
Loads 1500 ft. of Logs in 20 Minutes

Operated by one man, an AMOS LOG LOADER will load 1500 feet of logs on the chassis you sell.

Under favorable conditions, the Loader will load and securely bind the logs within 20 minutes.

DEALERS:
For Literature and Prices, Write

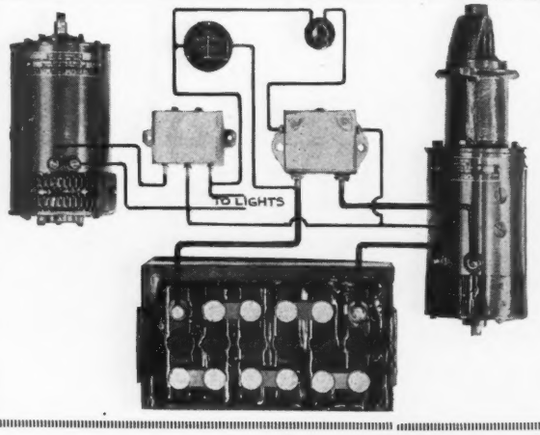
Amos Loader Company
Edinburg Indiana



DETROIT, MICH., OFFICE
1012 Ford Bldg.

THE BEARINGS COMPANY OF AMERICA—manufacturers of Angular Contact Radial Bearings, Angular Contact Thrust Bearings, Thrust Ball Bearings. Bearings made to your blueprints and requirements. Your present bearing sizes duplicated.

THE BEARINGS COMPANY OF AMERICA
LANCASTER, PENNA.



Makes Your Motorbus More Desirable

Every buyer will be more interested in your motorbus if it has a

LEECE-NEVILLE 12 VOLT ELECTRIC STARTING AND LIGHTING SYSTEM

The Compensator limits the charging rate of the Generator to the proper amount of current required by the storage battery, whether the lights are on or off. Prevents damage to battery thru overcharge when lights are not burning and causes generator output to rise to highest charging rate when lights are burning.

THE LEECE-NEVILLE COMPANY
CLEVELAND, OHIO

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You See

Every Day HAYES MFG. CO. HAYES DETROIT, MICH. *Every-where*

Sheet Metal Products

Hayes All-Metal Cabs

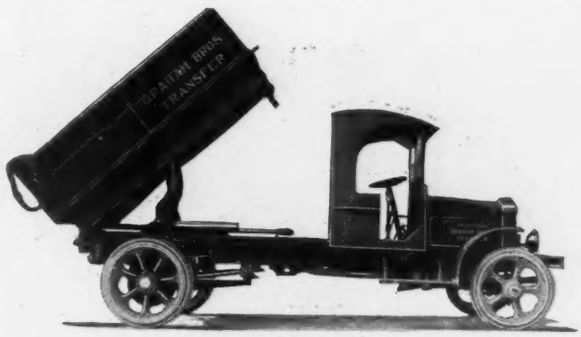
Give drivers full protection against the weather. Clear vision, front, rear and both sides. No obstructions. No rattle.

Last for years. Three sizes—fit all trucks. Can easily be removed from one truck and installed on another.

A fine investment, users say. Make drivers more comfortable—and more careful.

Write for Descriptive Folder and Prices

Hayes Manufacturing Company
Detroit, Michigan



Type DS-2 Standard Body, With Under-Body Hoist
Specially Designed for Heavy Road Work

A 45° Dumping Angle

Quick, clean dumping depends largely upon the dumping angle. Standard DS-2 Type bodies, equipped with under-body hoists, give a dumping angle of 45 degrees.

Extra reinforced. Designed for road or building contractors' work. Body capacities up to six yards, ready for shipment. Write today for full description and new low prices.

STANDARD STEEL WORKS
Holmes and 16th Sts. North Kansas City, Mo.
All Repair Parts Carried in Stock at Kansas City

STANDARD DUMP BODIES AND HOISTS

Specification Service on Sheet-Metal Steel Parts

Truck manufacturers who avail themselves of our specification service find that their production costs on sheet-metal parts are lowered.

Our big volume production, backed by the most modern machinery for producing sheet-metal parts, cuts tremendous slices from die costs, and time and labor in manufacture. It gives *you* the benefit of the best and most economical way of making these parts.

Why not start saving money on hoods, tanks, fenders and the like by asking us to estimate on your work. Costs nothing and *pays*.

A. B. & B.
Sheet Metal Works
Fond du Lac Ave. at 33rd St.
Milwaukee, Wis.

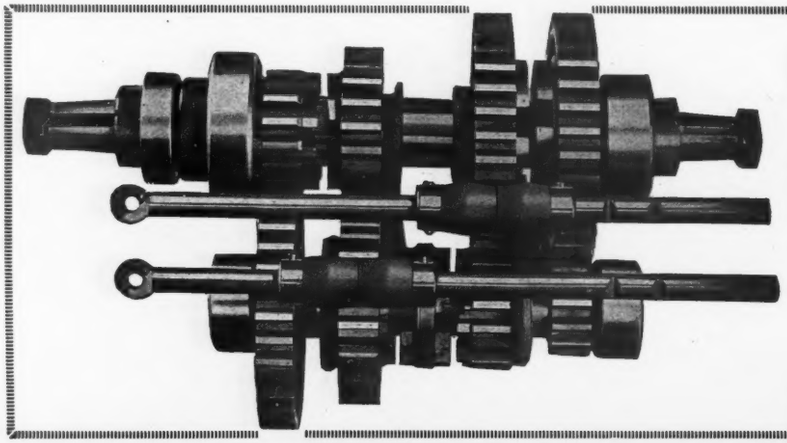
For

Truck or Motor Bus

Investigate

TORBENSEN AXLES

The TORBENSEN AXLE CO.
CLEVELAND, OHIO



COTTA GEAR CO.

INDIVIDUAL CLUTCH
TRANSMISSIONS
FOR
3½, 5 and 7 Ton Trucks

Notice the short, compact and husky construction.

Long bearings in the loose gears.

COTTA GEAR CO., Rockford, Ill.

PRESSED STEEL FRAMES
The largest and best equipped
frame plant in the world
A-O-SMITH CORPORATION
-MILWAUKEE-

Serial 75 De Luxe Body

22, 26, 30 Passenger Capacity

The Last Word in Fine Body Building

Correct Design — Complete Appointments—Superb Finish

Built by Pioneers in the Bus Body Field

Write for Descriptive Bulletin and Price List

Greenfield Bus Body Company
"Patterson Made"
210 Washington Ave. Greenfield, Ohio, U. S. A.

A Signal to You!

The appearance of this Symbol in a manufacturer's advertisement is a signal to you that the manufacturer has placed complete buying information about his product in the current issue of the CHILTON AUTOMOBILE DIRECTORY for your reference.

Watch for the Signal. Turn direct to the standard reference book of the trade and avoid lengthy correspondence.

Chilton Automobile Directory

(Published Quarterly)

Chestnut and 56th Streets Philadelphia, Pa.

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BUS SEATS

with deep, comfortable cushions with spring edge.

Bronze corner grip-handle for standees.

Offset back, giving additional aisle room.

Equip your buses with cross-seats. Passengers prefer to ride facing forward.

Write for Cuts and Prices of Seats in Rattan Genuine or Imitation Leather

Also Prices on Rattan Car Seat Webbing

Heywood-Wakefield Company

Factory: Wakefield, Mass.

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E. F. Boyle Monadnock Bldg., San Francisco, Cal.

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F. N. Grigg 630 Louisiana Ave. Washington, D. C.

Railway and Power Engineering Corp. Toronto and Montreal

G. F. Cotter Supply Co. Houston, Texas

Pittsburgh's Rough Mountainous Roads Make Truck Sales More Frequent

We have several openings for salesmen having more than five years' truck selling experience, whose commissions have reached more than $5000.00 per year. Those having sold Packard, White, Pierce-Arrow, Mack or Autocar preferred.

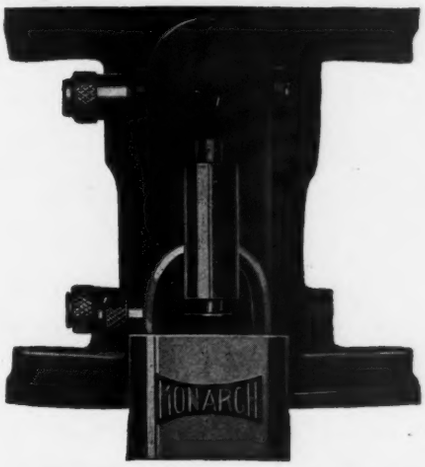
If you have earned $5000.00 or more per year in commissions in the level country you can more than double that amount in Pittsburgh.

In writing give age, weight, race, nationality and languages spoken. Also complete selling experience in first letter to

Brockway Motor Truck Company of Pittsburgh

201 South Highland Ave. Pittsburgh, Pa.

THE MODEL G



THE PIONEER
Gas Velocity Governor

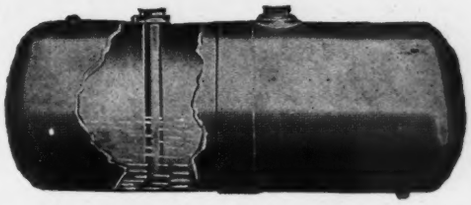
175,000 in Use All Over the World

MONARCH GOVERNOR CO.
DETROIT, MICH.

GAS TANKS

SEAMLESS LEAKLESS

SQUARE
ROUND



ALL SIZES — NEW BOOKLET

JANNEY-STEINMETZ CO.
PHILADELPHIA

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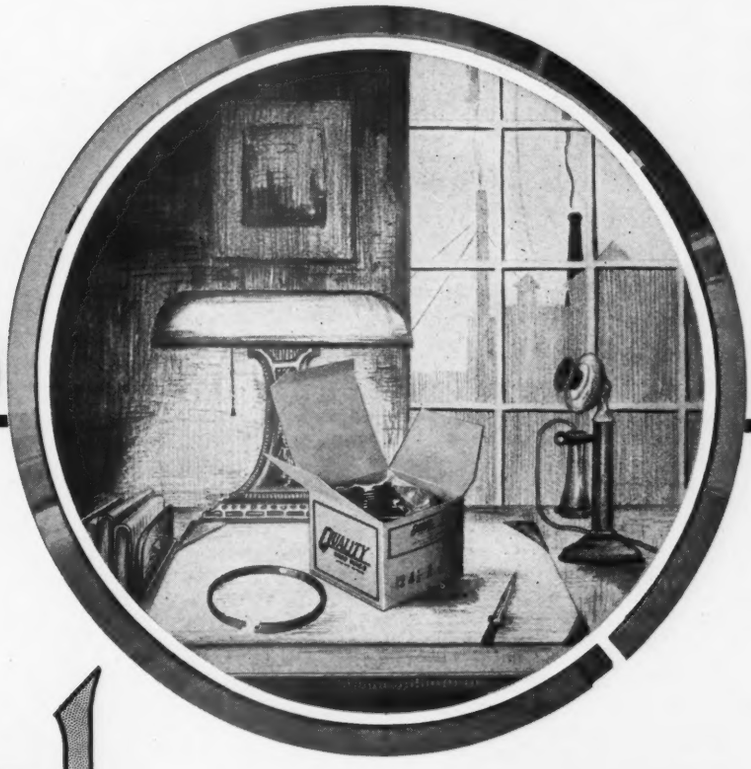
"CAST TO LAST"



The Place of Honor

QUALITY Piston Rings

Send for Booklet— "Cast to Last"

Including List Price; 12 Reasons Why and other valuable information

QUALITY Piston Rings were originated in answer to a demand for piston rings combining QUALITY—SERVICE—PRICE.

Immediately, engineers began to recognize QUALITY Rings. They studied their design. They put them to grueling tests. They weighed their every merit before finally deciding to install and to recommend them.

Twelve years have elapsed.

Today—more than 100 leading manufacturers are specifying QUALITY Rings as standard equipment, and QUALITY Rings are in such replacement demand that 12,000 are being produced each working hour and 3,000,000 regularly stocked to supply JOBBERS and DEALERS who are fully participating in QUALITY Piston Ring popularity.

This ever-increasing demand, in itself, pays striking tribute to a product that year after year writes history in progress and accomplishment.

The Piston Ring Company

Muskegon, Michigan

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Interurban Despatch

- de luxe -

The World's Best

Built on Experience

(22 YEARS)

Sold on Honor

Capacities: Speed Truck to 5 Ton

The Gramm-Bernstein Motor Truck Co.
Lima, Ohio, U. S. A.

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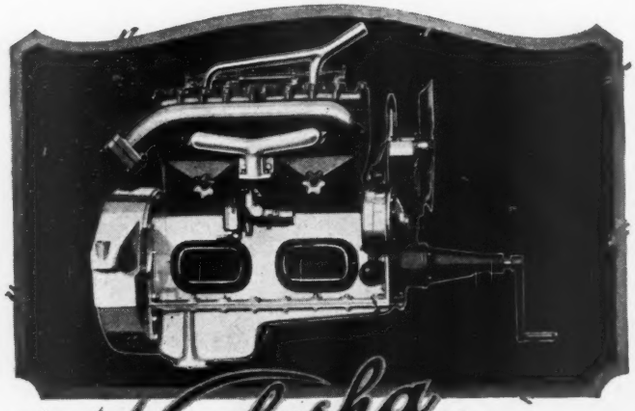


Waukesha
TRADE MARK
BUS and TRUCK MOTORS

Remarkable sales possibilities in buses and trucks have been created through the Waukesha Motor.
In this motor Waukesha experience and engineering skill have exemplified those features Commercial America has long sought—unwavering long period endurance, inexhaustible powerability, and a new standard in continuous economic performance.
Waukesha-equipped buses and trucks give you an unmatchable selling point.

The WAUKESHA MOTOR COMPANY, Waukesha, Wisconsin
The World's Largest Builders of Bus, Truck and Industrial Motors Exclusively

Adds Years to the Life of

Your Light Delivery Truck Assembly

Only in the Columbia Single Reduction Bevel Gear Axle will you find those features of construction that will add years to the life of your light delivery, high-speed truck assembly.

The famous Columbia one-piece housing—pressed from a single piece of steel, and welded once—adds 50% greater torsional strength, *alone*.

Let us tell you the Columbia story in full. It will pay interested truck manufacturers to write for it to

The Columbia Axle Co. Cleveland, Ohio

COLUMBIA
SINGLE REDUCTION AXLES

THIS SYMBOL IN ANY ADVERTISEMENT MEANS: SEE "CHILTON AUTOMOBILE DIRECTORY" FOR COMPLETE BUYING INFORMATION

Gary Has a Ready-Made Business for You

Out of 53 large industrial centers throughout the United States, there are 18 territories open where the Gary Motor Truck Organization has sold, *and kept sold*, from 25 to 300 Gary Motor Trucks. In these centers there are no Gary dealers.

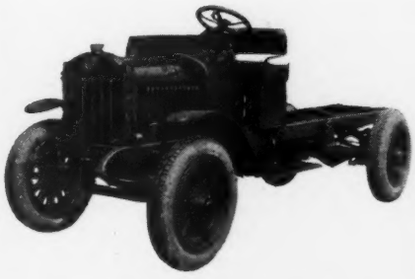
Here is a splendid *ready-made* truck business for enterprising dealers because :

1. Service has been maintained at each of these points. Therefore, Gary truck owners are satisfied owners —who are ready to give repeat orders to take care of expanding business requirements.
2. Each center is a large commercial city with great truck selling possibilities.
3. At every one of these strategic industrial points, Gary trucks have been in service for 3 to 7 years. This long period of service provides you, as a Gary dealer, with a telling sales argument.
4. All Gary owners, as far as we can ascertain, are boosters for Gary trucks and Gary service.

The Gary line includes: 1, 2, 2½, 3½, 5 ton capacities; two buses of 18 to 21 and 25 to 30 passenger capacity, and the Gary Oil Special. A complete line—with an unusually fine performance record.

If you want to take hold of a splendid ready-made truck business, get in touch with us *at once*.

GARY MOTOR CORPORATION
GARY, INDIANA



Immediate Action is Advised

Our proposition is so uncommon that we anticipate a quick response from the best dealers in the country.

So immediate action is advised, if you think you're the kind of representative we want. ***Wire or write at once.***

The up-to-date Gary Motor Truck plant at Gary, Indiana. Capacity, 200 trucks monthly.

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What's all this talk about Electric Trucks?

Why all this talk about electrics? Why the sudden spurt of newspaper advertising and advertising in trade papers? Why so much editorial attention by truck operators' and fleet owners' publications? And why is the Commercial Car Journal running articles on the electric truck industry?

What does it all mean, anyway? Hasn't the electric truck been dead and buried for the last 20 years?

Not by a long shot! Electric truck sales are going ahead by leaps and bounds. Dealers are cashing in on the greatest sales in the history of electric trucks. There's an electric truck boom!

And why? Simply because truck operators and horse users are waking up to the fact that their overhead expenses are too high—that their delivery costs are out of all proportion to their gross business. Today, these delivery users are *looking into* their costs of delivery and are finding out that horses and wagons are costing too much *on short-haul and frequent-stop routes.* They are finding out by careful cost analysis that on these routes (more than 75% of all city routes) electric trucks cut delivery costs 20% to 35%.

It's an opportunity for every gas truck dealer to cash in on the sales that have been going to horses and wagons and the so-called "cheap" light gas trucks. Here is your opportunity to enlarge your business and increase your profits without interfering with your present gas truck business. Anyone with half an eye knows that gas trucks are essential for long out-of-town routes, and that horses or electric trucks cannot compete on these routes. It is just as true that the obvious vehicle for short-haul and frequent-stop routes is the electric truck because it will do all that horses and wagons or cheap light gas trucks will do and do it for much less money—20% to 35% and even 50% cheaper.

The iron is hot—and getting hotter! The time to strike is now! Don't let a day go by without looking into even the barest possibility of greatly enlarging your present business and thereby greatly increasing your profits. Write us right now and we will send you a book telling the electric truck story—facts, figures and comparative costs and a definite sales plan that will help you in making fleet sales.

Write us today if your territory is open.

Ward Motor Vehicle Company
Mt. Vernon, N. Y.

Ward Electric Trucks cut delivery costs 20% to 35%

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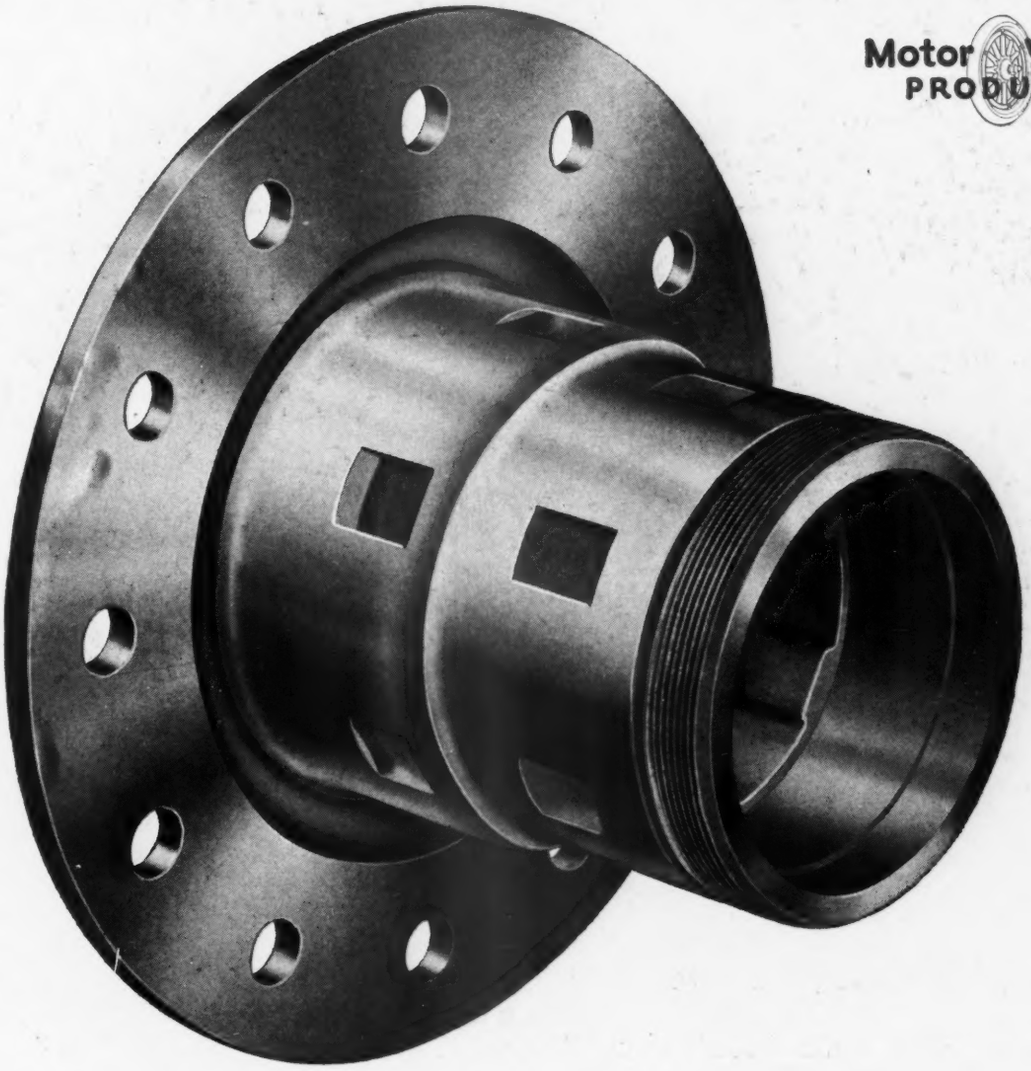
Gier Stampings

Motor Wheel PRODUCTS

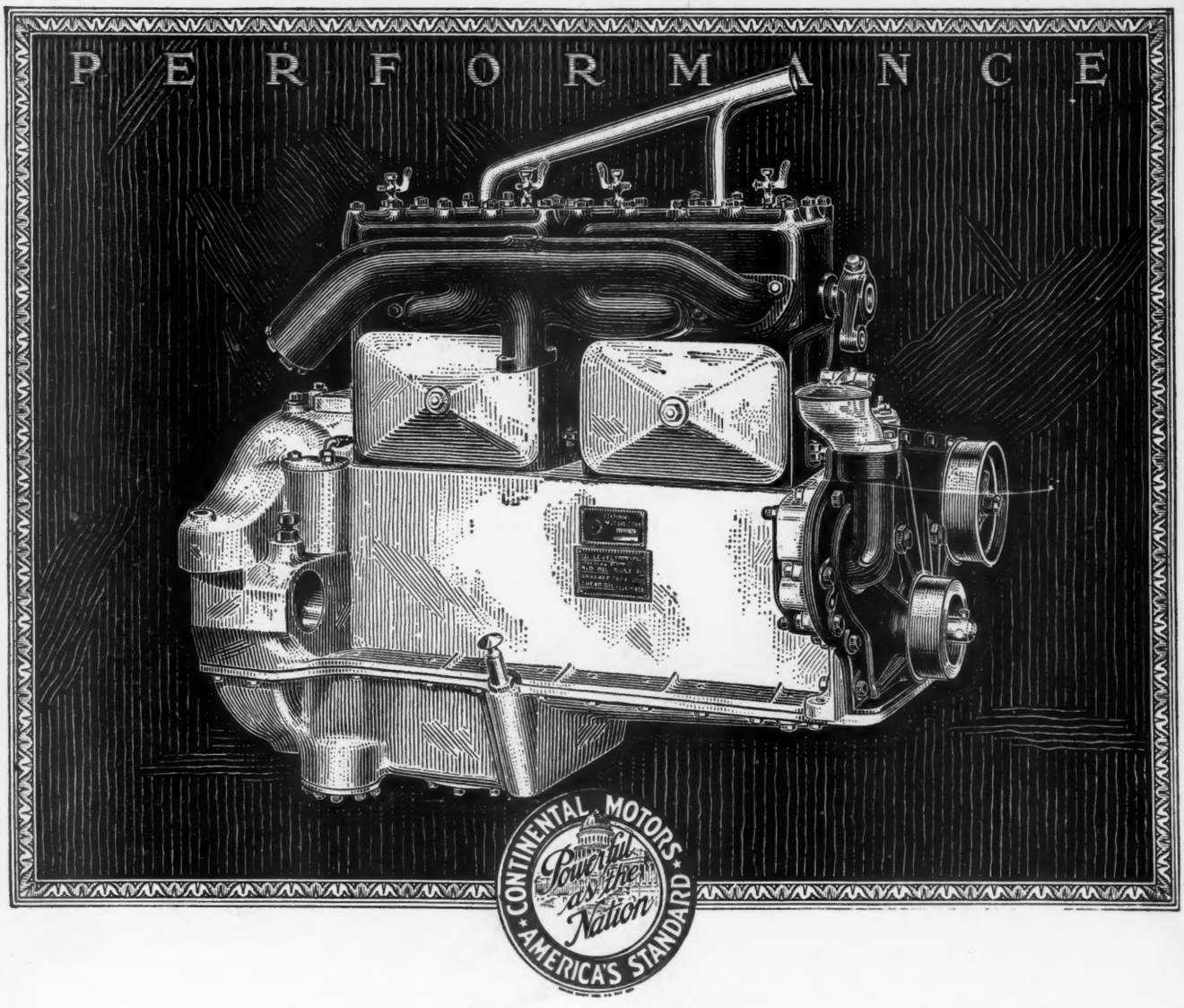


Better Hubs that Cost Less to Use

No one ever *goes back* from hubs pressed by Gier. Gier hubs show greater strength with less weight, than hubs produced by other processes. The hubs Gier stamps require a very minimum of machining. The remarkably fine finish accurately indicates flawless texture. Assured uniformity speeds the assembly line. The service department never hears of hubs stamped by Gier.

MOTOR WHEEL CORPORATION, LANSING, MICHIGAN

Wood Wheels *Steel Wheels* *Stampings*



THE buyer of a specialized truck knows that the utmost in performance is realized in the motor bearing upon its crankcase the trademark that represents twenty-two years of motor specialization—the Continental Red Seal.

Largest Motor Specialists in the World

CONTINENTAL MOTORS CORPORATION
DETROIT AND MUSKEGON, MICHIGAN

Continental Motors

Identification is on the motor of America's leading Specialized cars and trucks.